TITLE:	OFFICIAL GAZETTE OF THE UNITED STATES PATENT AND TRADEMARK OFFICE. PATENTS.	
REEL NO:	7	Patents #4,754,498-4,760,609
VOLUME:	1092	Issues: 1-4
DATE:	July 5 - 26, 1988	
PUBLICATION NO:	10,426	
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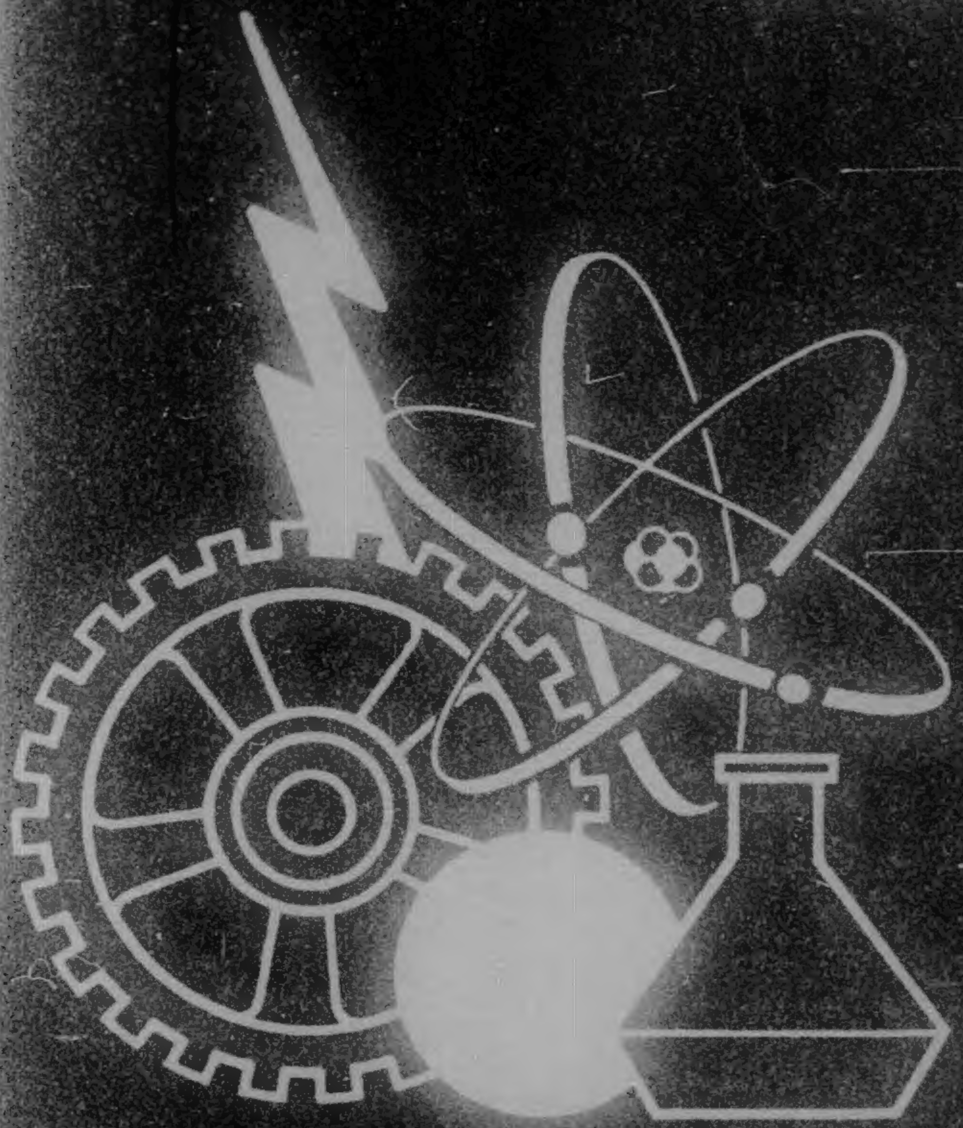
Vol. 1092 Number 1

OFFICIAL GAZETTE

of the
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS
July 5, 1988



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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning the PCT member countries see the notice appearing in the *Official Gazette* at 1076 O.G. 3 on Mar. 3, 1987.

For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52 on Sept. 28, 1982.

For use of the European Patent Office as a Preliminary Examining Authority for PCT applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1080 O.G. 2 on July 7, 1987.

Certain domestic PCT fees for international applications have been changed effective Oct. 5, 1985 in the rule change notice titled "Revision of Patent Fees" published at 1057 O.G. 24 on Aug. 20, 1985.

The Search fee of the European Patent Office was changed due to a difference in the exchange rate of the U.S. dollar with regard to the German Mark as of Mar. 15, 1988, and was announced in the *Official Gazette* at 1087 O.G. 24 on Feb. 16, 1988.

Domestic PCT Fees for Chapter II, effective July 1, 1987, were announced in the *Official Gazette* at 1079 O.G. 32 on June 16, 1987.

International PCT fees were changed on July 1, 1987 due to a difference in the exchange rate of the U.S. dollar with regard to the Swiss Franc and were announced in the *Official Gazette* at 1079 O.G. 50 on June 23, 1987.

International PCT Chapter II fees which were effective July 1, 1987, were announced in the *Official Gazette* at 1079 O.G. 50 on June 23, 1987. The elimination of multiple handling fees and the supplement to the handling fee under PCT Rule 57 was announced at 1085 O.G. 34 on Dec. 22, 1987.

The withdrawal of the Japanese declaration under PCT Article 64(2)(a), concerning the requirement for a Japanese translation of the international application within 20 months from the priority date when Japan is elected under PCT Chapter II, as from Dec. 8, 1987, was announced at 1085 O.G. 34 on Dec. 22, 1987.

National stage fees effective July 1, 1987, for entering the U.S. Patent and Trademark Office as a designated or elected Office were changed effective July 1, 1987, and were announced in the *Official Gazette* at 1079 O.G. 32 on June 16, 1987.

The current schedule of PCT fees is as follows:

Transmittal fee:	170.00
Search Fee	
U.S. Patent and Trademark Office as Searching Authority (ISA)	
—No corresponding prior U.S. national application filed:	520.00
—Corresponding prior U.S. national application filed:	350.00
—Supplemental search fee, per additional invention	140.00
European Patent Office as Searching Authority	1300.00
Preliminary examination fee	
U.S. Patent and Trademark Office as Preliminary Fxamining Authority (IPEA)	
—Search fee paid to USPTO as Searching Authority	370.00
—Additional examination fee, per additional invention	125.00
—Searching Authority not the USPTO	570.00
—Additional examination fee, per additional invention	190.00
International fees	
Basic fee:	485.00
Basic Supplemental fee (for each page over 30):	10.00
Designation fee per country or region for the first 10 national or regional offices:	120.00
Designation fee for 11th and subsequent designations:	No Charge
Handling fee:	150.00

U.S. National Stage fees

	Small Entity	Non-small Entity
U.S. Patent and Trademark Office was Preliminary Examining Authority (IPEA)	150.00	300.00
USPTO was ISA but not IPEA	170.00	340.00
USPTO was neither ISA nor IPEA	225.00	450.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(1) to (4)	25.00	50.00
—For each independent claim in excess of 3	17.00	34.00
—For each claim in excess of 20	6.00	12.00
—For each application containing a multiple dependent claim	55.00	110.00
—Surcharge for filing national fee or oath or declaration after the time limit applicable under PCT Article 22 or 39.1	55.00	110.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39.1	26.00	26.00

DONALD J. QUIGG,
Assistant Secretary and
Commissioner of Patents
and Trademarks.

Mar. 21, 1988.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d), effective Nov. 1, 1984, provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(k) or (l), as amended effective Oct.

5, 1985. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on July 2, 1985, for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents	4,525,875 through 4,527,286
Reissue Patents based on the above identified patents.	

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

The current amounts of the maintenance fees due at 3 years and six months are set forth in 37 CFR 1.20(e) and (h), as amended effective Oct. 5, 1985, which are reproduced below.

37 CFR §1.20 Post-issuance fees

> "(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant . . . $ 225.00"

> "(h) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Aug. 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant:
>
> By a small entity (§1.9(f)) . . . $ 225.00
> By other than a small entity . . . $ 450.00"

The amounts of the surcharges as amended effective Oct. 5, 1985, are set forth in 37 CFR 1.20 (k) and (l) which are reproduced below:

> "(k) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982 . . . $ 110.00"

> "(l) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months; and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Aug. 27, 1982:
>
> By a small entity (§1.9(f)) . . . $ 55.00
> By other than a small entity . . . $ 110.00"

Section 1.20 paragraph (m) as amended as a result of enactment of Public Law 98-622 effective Nov. 8, 1984, is reproduced below:

> "(m) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay in payment is shown to the satisfaction of the Commissioner to have been unavoidable . . . $ 500.00"

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED APRIL 17, 1988, DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,442,554	06/348,284	4/17/84
4,442,555	06/269,973	4/17/84
4,442,563	06/351,667	4/17/84
4,442,565	06/414,351	4/17/84
4,442,569	06/282,024	4/17/84
4,442,575	06/316,943	4/17/84
4,442,585	06/363,871	4/17/84
4,442,593	06/411,475	4/17/84
4,442,595	06/365,170	4/17/84
4,442,600	06/308,493	4/17/84
4,442,605	06/390,399	4/17/84
4,442,606	06/367,578	4/17/84
4,442,610	06/479,863	4/17/84
4,442,614	06/334,884	4/17/84
4,442,622	06/455,205	4/17/84
4,442,626	06/292,174	4/17/84
4,442,631	06/389,714	4/17/84
4,442,648	06/292,786	4/17/84
4,442,657	06/276,707	4/17/84
4,442,666	06/435,819	4/17/84
4,442,670	06/397,410	4/17/84
4,442,671	06/380,466	4/17/84
4,442,681	06/306,219	4/17/84
4,442,689	06/348,950	4/17/84
4,442,697	06/359,742	4/17/84
4,442,698	06/460,307	4/17/84
4,442,703	06/358,243	4/17/84
4,442,707	06/451,556	4/17/84
4,442,714	06/293,912	4/17/84
4,442,716	06/373,771	4/17/84
4,442,726	06/243,976	4/17/84
4,442,739	06/390,178	4/17/84
4,442,742	06/335,580	4/17/84
4,442,744	06/325,964	4/17/84
4,442,752	06/315,420	4/17/84
4,442,753	06/421,602	4/17/84
4,442,765	06/365,151	4/17/84
4,442,767	06/392,739	4/17/84
4,442,771	06/324,822	4/17/84
4,442,777	06/453,133	4/17/84
4,442,783	06/410,178	4/17/84
4,442,785	06/381,268	4/17/84
4,442,793	06/396,725	4/17/84
4,442,794	06/379,666	4/17/84
4,442,798	06/508,424	4/17/84
4,442,802	06/432,181	4/17/84
4,442,821	06/335,831	4/17/84
4,442,825	06/330,177	4/17/84
4,442,827	06/309,752	4/17/84
4,442,841	06/259,112	4/17/84
4,442,851	06/391,225	4/17/84
4,442,856	06/293,993	4/17/84
4,442,858	06/346,727	4/17/84
4,442,860	06/315,258	4/17/84
4,442,867	06/483,747	4/17/84
4,442,874	06/389,410	4/17/84
4,442,881	06/405,502	4/17/84
4,442,882	06/299,278	4/17/84
4,442,889	06/266,341	4/17/84
4,442,896	06/400,323	4/17/84
4,442,917	06/429,037	4/17/84
4,442,919	06/524,461	4/17/84
4,442,924	06/511,001	4/17/84
4,442,927	06/370,855	4/17/84
4,442,942	06/358,101	4/17/84
4,442,946	06/433,388	4/17/84
4,442,947	06/459,064	4/17/84
4,442,948	06/418,653	4/17/84

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Patent Number	Serial Number	Issue Date
4,442,950	06/460,394	4/17/84
4,442,954	06/403,331	4/17/84
4,442,962	06/235,545	4/17/84
4,442,971	06/416,949	4/17/84
4,442,977	06/342,262	4/17/84
4,442,978	06/400,205	4/17/84
4,442,981	06/383,018	4/17/84
4,442,983	06/367,062	4/17/84
4,442,990	06/393,666	4/17/84
4,442,991	06/346,398	4/17/84
4,442,996	06/356,034	4/17/84
4,443,000	06/334,724	4/17/84
4,443,010	06/340,063	4/17/84
4,443,020	06/304,798	4/17/84
4,443,023	06/378,042	4/17/84
4,443,024	06/342,199	4/17/84
4,443,033	06/257,527	4/17/84
4,443,037	06/316,103	4/17/84
4,443,038	06/366,064	4/17/84
4,443,041	06/344,669	4/17/84
4,443,046	06/419,189	4/17/84
4,443,053	06/405,550	4/17/84
4,443,054	06/380,437	4/17/84
4,443,056	06/429,548	4/17/84
4,443,058	06/304,505	4/17/84
4,443,069	06/368,092	4/17/84
4,443,072	06/365,133	4/17/84
4,443,079	06/426,898	4/17/84
4,443,094	06/443,814	4/17/84
4,443,098	06/451,780	4/17/84
4,443,107	06/289,255	4/17/84
4,443,109	06/303,874	4/17/84
4,443,129	06/294,641	4/17/84
4,443,136	06/438,885	4/17/84
4,443,141	06/351,213	4/17/84
4,443,156	06/233,126	4/17/84
4,443,159	06/249,665	4/17/84
4,443,162	06/243,491	4/17/84
4,443,163	06/398,547	4/17/84
4,443,171	06/368,110	4/17/84
4,443,182	06/320,007	4/17/84
4,443,184	06/328,596	4/17/84
4,443,190	06/341,515	4/17/84
4,443,191	06/429,033	4/17/84
4,443,195	06/265,379	4/17/84
4,443,198	06/364,769	4/17/84
4,443,200	06/521,093	4/17/84
4,443,211	06/323,961	4/17/84
4,443,223	06/413,015	4/17/84
4,443,224	06/393,717	4/17/84
4,443,226	06/464,527	4/17/84
4,443,242	06/340,462	4/17/84
4,443,247	06/355,062	4/17/84
4,443,248	06/367,642	4/17/84
4,443,259	06/449,098	4/17/84
4,443,262	06/429,332	4/17/84
4,443,269	06/228,971	4/17/84
4,443,274	06/446,758	4/17/84
4,443,282	06/373,526	4/17/84
4,443,284	06/317,245	4/17/84
4,443,285	06/386,253	4/17/84
4,443,289	06/427,245	4/17/84
4,443,300	06/440,083	4/17/84
4,443,303	06/489,631	4/17/84
4,443,307	06/477,091	4/17/84
4,443,315	06/389,769	4/17/84
4,443,341	06/352,976	4/17/84
4,443,356	06/418,756	4/17/84
4,443,369	06/284,918	4/17/84
4,443,386	06/387,925	4/17/84
4,443,394	06/527,641	4/17/84
4,443,405	06/393,530	4/17/84
4,443,410	06/318,089	4/17/84
4,443,414	06/407,964	4/17/84
4,443,426	06/387,731	4/17/84
4,443,440	06/412,426	4/17/84
4,443,445	06/413,955	4/17/84
4,443,453	06/240,817	4/17/84
4,443,459	06/379,060	4/17/84
4,443,483	06/392,848	4/17/84
4,443,487	06/351,729	4/17/84
4,443,494	06/462,818	4/17/84
4,443,500	06/363,610	4/17/84
4,443,501	06/353,716	4/17/84
4,443,508	06/431,617	4/17/84
4,443,522	06/378,857	4/17/84
4,443,537	06/422,926	4/17/84
4,443,562	06/399,692	4/17/84
4,443,567	06/423,081	4/17/84
4,443,576	06/362,686	4/17/84
4,443,599	06/377,697	4/17/84
4,443,600	06/395,181	4/17/84
4,443,602	06/349,134	4/17/84
4,443,603	06/381,443	4/17/84
4,443,605	06/403,464	4/17/84
4,443,607	06/361,935	4/17/84
4,443,613	06/428,748	4/17/84
4,443,643	06/497,378	4/17/84
4,443,655	06/325,279	4/17/84
4,443,663	06/373,315	4/17/84
4,443,665	06/430,946	4/17/84
4,443,673	06/330,429	4/17/84
4,443,680	06/249,406	4/17/84
4,443,693	06/356,046	4/17/84
4,443,696	06/297,526	4/17/84
4,443,700	06/377,904	4/17/84
4,443,711	06/500,831	4/17/84
4,443,727	06/384,258	4/17/84
4,443,736	06/304,784	4/17/84
4,443,737	06/330,622	4/17/84
4,443,738	06/396,381	4/17/84
4,443,740	06/366,872	4/17/84
4,443,741	06/301,944	4/17/84
4,443,742	06/326,070	4/17/84
4,443,746	06/300,441	4/17/84
4,443,755	06/328,448	4/17/84
4,443,765	06/303,448	4/17/84
4,443,767	06/237,450	4/17/84
4,443,769	06/304,163	4/17/84
4,443,782	06/355,563	4/17/84
4,443,786	06/304,335	4/17/84
4,443,793	06/317,444	4/17/84
4,443,800	06/367,504	4/17/84
4,443,805	06/329,318	4/17/84
4,443,831	06/492,900	4/17/84
4,443,844	06/294,367	4/17/84
4,443,858	06/267,282	4/17/84
4,443,871	06/338,379	4/17/84
4,443,881	06/383,478	4/17/84
4,443,884	06/359,576	4/17/84

Notification of Acceptance of Delayed Payment of Maintenance Fee
(35 U.S.C. 41(c); 37 CFR 1.378)

The patents listed below are considered as not having expired but are subject to the conditions set forth in 35 U.S.C. 41(c)(2), in view of the Petition to Accept Late Payment of the maintenance fees which has been GRANTED BY THE COMMISSIONER OF PATENTS AND TRADEMARKS, as provided for under 35 U.S.C. 41(c)(1) and 37 CFR 1.378.

Patent No.	Serial No.	Patent Date	Application Filing Date	Delayed Payment Acceptance Date
4,394,965	06/264,563	7/26/83	5/18/81	5/27/88
4,435,858	06/395,123	3/13/84	7/6/82	6/2/88

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.19(a)).

4,489,779, Re. S.N. 192,289, Filed May 9, 1988, Cl. 166/84, FLUID FOR SAMPLING APPARATUS, William Dickinson, et al., Owner of Record: *Q.E.D. Environmental System, Inc., Ann Arbor, Mich.*, Attorney or Agent: Jeffrey A. Sadowski, Ex. Gp.: 356

4,586,428, Re. S.N. 184,438, Filed Apr. 21, 1988, Cl. 99/332, COOKING APPARATUS FOR TWO SIDED COOKING, Lee A. Adamson, et al., Owner of Record: *Restaurant Technology, Inc., Oak Brook, Ill.* Attorney or Agent: Ronald L. Wanke, Ex. Gp.: 242

4,587,670, Re. S.N. 190,606, Filed May 5, 1988, Cl. 381/43, HIDDEN MARKOV MODEL SPEECH RECOGNITION ARRANGEMENT, Stephen E. Levinson, et al. Owner of Record: *Bell Telephone Laboratories, Inc., a Corp. of New York,* Attorney or Agent: Wilford L. Wisner, Ex. Gp.: 231

4,588,086, Re. S.N. 193,396, Filed May 12, 1988, Cl. 206/444, SUBSTRATE AND MEDIA CARRIER, Thomas U. Coe, Owner of Record: *Inventor,* Attorney or Agent: George C. Limbach, Ex. Gp.: 241

4,588,325, Re. S.N. 193,496, Filed May 12, 1988, Cl. 405/46, MODULAR ROCK REPLACING DRAIN FIELD APPARATUS, Kenneth F. Seefert, Owner of Record: *Inventor,* Attorney or Agent: Douglas L. Tschida, Ex. Gp.: 351

4,607,256, Re. S.N. 186,230, Filed Apr. 26, 1988, Cl. 340/825.52, PLANT MANAGEMENT SYSTEM, Russell A. Henzel, Owner of Record: *Honeywell Inc., Minneapolis, Minn.*, Attorney or Agent: William W Holloway, Ex. Gp.: 264

4,636,504, Re. S.N. 189,136, Filed May 2, 1988, Cl. 514/252, 6-(ALKANOLAMINOARY L)- 3(2H) PYRIDAZINONE DERIVATIVES, THEIR PREPARATION AND THEIR USE, Phillip A. Rossy, et al., Owner of Record: *BASF Aktiengesellschaft, Ludwigshafen, Germany,* Attorney or Agent: Herbert B. Keil, Ex. Gp.: 125

4,658,771, Re. S.N. 192,876, Filed May 2, 1988, Cl. 123/142.5R, DIESEL HEAT PUMP, Robert H. Ravin, Owner of Record: *Electrical Specialty Inc., a Corp. of Fla.*, Attorney or Agent: James H. Beusse, Ex. Gp.: 342

4,678,472, Re. S.N. 191,225, Filed May 6, 1988, Cl. 623/18, BALL AND SOCKET BEARING FOR ARTIFICIAL JOINT, Douglas G. Noiles, Owner of Record: *Joint Medical Products Corp., Stamford, Conn.*, Attorney or Agent: Maurice M. Klee, Ex. Gp.: 332

4,710,781, Re. S.N. 189,544, Filed May 2, 1988, Cl. 346/76.0PH, THERMAL PRINTER COLOR DYE FRAME IDENTIFICATION USING RED AND YELLOWLIGHT SOURCES, Stanley W, Stephenson, Owner of Record: *Eastman Kodak Co., Rochester, N.Y.*, Attorney or Agent: Raymond L. Owens, Ex. Gp.: 216

4,721,783, Re. S.N. 189,957, Filed May 3, 1988, Cl. 544/58.1, ANTI-SPASMODIC AGENTS HAVING A HETEROCYCLIC RING, William M. Davis, Owner of Record: *United Pharmaceutical, Inc., Tucson, Ariz.* Attorney or Agent: Austin R. Miller, Ex. Gp.: 129

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,459,526, Reexam. No. 90/001,520, Requested May 25, 1988, Cl. 318/576, MULTI APERTURED LENS SHOCK WAVE PROBE, Elmer L. Griebeler, Owner of Record: *Cleveland Machine Controls, Inc., Valley View, Calif.*, Attorney or Agent: Body, Vickers, et al., Ex. Gp.: 210, Requester: Ultrasonic Arrays, Inc., San Francisco, Calif.

4,604,078, Reexam. No. 90/001,519, Requested: May 24, 1988, Cl. 474/80, THREE-STAGE SPEED CHANGE FRONT DERAILLEUR, Masashi Nagano, Owner of Record: *Shimano Industrial Co., Osaka, Japan,* Attorney or Agent: Farrell R. Werbow, Ex. Gp.: 350, Requester: Owner

4,735,106, Reexam. No. 90/001,518, Requested: May 27, 1988, Cl. 74/489, BRAKE OPERATING DEVICE FOR BICYCLES, Toshiharu Yoshigai, Owner of Record: *Yoshigai Kikai Kinzoku Co., Osaka, Japan,* Attorney or Agent: Sixby, Friedman, et al., Ex. Gp.: 310, Requester: Thomas J. D'Amico, Alexandria, Va.

Service by Publication

A petition to cancel the registration identified below having been filed, and the notice of such proceedings sent by registered mail to registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrant listed herein, its assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will be proceeded with as in the case of default.

Happiness, Inc., Kingman, Kans., Reg. No. 960,419, for the mark "TLC", Canc. No. 16,308.

ERMA S. BROWN,
Administrator
of the Trademark Trial
and Appeal Board.
For JEFFREY M. SAMUELS,
Assistant Commissioner
for Trademarks.

Erratum

"All reference to Reexamination Certificate No. B1 3,957,084 (630th) appearing in the Official Gazette of Feb. 10, 1987 should be deleted since no reexamination certificate has been granted".

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Erratum

"All reference to Patent No. 4,743,426 to David E. Wert et al. of Pa. for 'HOT WORK TOOL STEEL' appearing in the Official Gazette of May 10, 1988 should be deleted since no patent was granted."

Removal From Register

Pursuant to the provisions of 37 C.F.R. §10.11(b), a letter was directed on Mar. 11, 1988, to Mr. Harold D. Steinberg, at Steinberg & Raskin, 60 E. 42nd St., N.Y., N.Y. 10165 the last post office address furnished by him to the Office of Enrollment and Discipline. The letter was returned marked: "Returned to Sender".

Accordingly, his name is being removed from the Register of Attorneys.

CAMERON WEIFFENBACH
Director, Office of Enrollment and Discipline.

June 2, 1988

Removal From Register

Pursuant to the provisions of 37 CFR §10.11(b), a letter was directed on Nov. 20, 1987 to the last post office address furnished to the Office of Enrollment and Discipline by each of the persons whose name and address appear on the following list. With respect to some of the letters, no reply was received within the period of forty-five (45) days therein set. Other letters were returned by the Post Office with notations to the effect that the addressee was deceased, unknown, or had moved and left no forwarding address.

Accordingly, the names of the following persons have been removed from the Register of Patent Attorneys and Agents.

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June 8, 1988

CAMERON WEIFFENBACH,
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Reinstatement to Register

The following is a list of persons whose names have been previously removed from the Register of Attorneys and Agents pursuant to the provisions of 37 CFR 10.11(b), and are being reinstated in view of the required fee and information they have furnished the Office of Enrollment & Discipline.

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Drummond, William H., 4041 MacArthur Blvd., Ste. 170, Newport Beach, Calif. 92660
Dubuc, Jean H., Goudreau Gage Dubuc & Martineau Walker, 3400 The Stock Exchange Tower, P.O. Box 242, Victoria Square, Montreal, Que., H4Z 1E9 Canada
Duffy, James F., 13430 N. 2nd St., Phoenix, Ariz. 85022
Duggan, Jeremiah J., Kimberly-Clark Corp., 1400 Holcomb Bridge Rd., Roswell, Ga. 30076
Dulak, Norman C., Hoffmann-La Rophe Inc., 340 Kingsland St., Nutley, N.J. 07110
Francis, Gene W. Jr., Brice & Mankoff, 300 Crescent Ct., 7th Floor, Dallas, Tex. 75201
Goodwin, Lawrence B., Davis Hoxie Faithful & Hapgood, 45 Rockefeller Plz., New York, N.Y. 10111

Jordan, Joseph R., 2008 Carew Tower, 441 Vine, Cincinnati, Ohio 45202
Kretin, Bernhard, 2020 29th St., Ste. 211, Sacramento, Calif. 95817
Krosin, Kenneth E., Lowe, Price, LeBlanc, Becker & Shur, 427 N. Lee St., Alexandria, Va. 22314
Oberdorfer, Wilson, Howson & Howson, Spring House Corporate Center, P.O. Box 457, Spring House, Pa. 19477
Pinsak, William F., 74 Tower Hill Rd., Mountain Lakes, N.J. 07046
Saxon, Charles S., Eastern Michigan University, 511 Pray-Harrold, Ypsilanti, Mich. 48197
Schwendinger, David, Rt. 2 Box 1620 Pine Ridge Dr., Heiskell, Tenn. 37754
Springs, Darryl M., Baker, Kirk & Bissex, P.C., 1020 Holcombe Blvd., Ste. 1444, Houston, Tex. 77030
Tamburro, David A., 783 Wyoming Ave., Kingston, Pa. 18704
Thomas, Bradley S., 9332 Ramblebrook Rd., Baltimore, Md. 21236
Tighe, Thomas J., Brown, Martin, Haller & Meador, 110 W. "C" St., 13th Floor, San Diego, Calif. 92101
Trudeau, Raymond, Goudreau Gage Dubuc & Martineau Walker, 3400 The Stock Exchange Tower, P.O. Box 242 Victoria Sq., Montreal, Que., H4Z 1E9, Canada
Ulrich, Richard P., 4068 S. 60th St., Milwaukee, Wis. 53220
Webster, John A. S., 2213 Nicollet Ave., Minneapolis, Minn. 55404
Welch, John J., Jr., 79 Center St., Rutland, Vt. 05701
Winegar, Donald M., U.S. Army Benet Labs., Army R.D. & E. Center, SMCAR-CCB-SAS, Watervliet, N.Y. 12189

CAMERON WEIFFENBACH,
June 8, 1988 *Director, Office of Enrollment and Discipline.*

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ma, Joyo, Japan, assignor
…usha, Kyotoshi, Japan
Reexamination Request No. 90/001,40…
Reexamination Certificate for Reissue Pate…
Jun. 5, 1984, Ser. No. 349,075, Feb. 16, 198…
4,263,775, dated Apr. 28, 1981, Ser. No. 79,…

Int. Cl.⁴ D…

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…ed first and s…

B1 3,919,354 (8…)
IMPACT RESISTANT POLYMERS OF A RESI…
COPOLYMER OF AN ALKENYL AROMA…
MONOMER AND UNSATURATED DICARB…
ANHYDRIDE

Eugene R. Moore; Ronald G. Lehrer; Charles E. Lyons, Leland D. McKeever, all of Midland, Mich., assignors to T… Dow Chemical Company, Midland, Mich.

Reexamination Request Nos. 90/000,524, Mar. 5, 1984 an… 90/000,608, Aug. 13, 1984.

Reexamination Certificate for Patent No. 3,919,354, issued N… 11, 1975, Ser. No. 471,087, May 17, 1974.

Continuation of Ser. No. 287,526, Sep. 8, 1972, aba… which is a continuation-in-part of Ser. No. 182,89…

…Hiroshi I…
…s to Moriseca Resear…
…d C. Itoh & Co., Osaka, Japan
Request No. 90…
…ficate for Paten…

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CONTAINING SAME

[illegible] G. Kugele; Keith A. Mesch, and Kurt R. Wursthorn, all of Cincinnati, Ohio, assignors to Carstab Corporation, Read[illegible]

Reexamination Request No. 90/000,583, Jul. 5, 1984

[illegible]examination Certificate for Patent No. 4,[illegible] issued [illegible]

[illegible] at least 2 carb[illegible]

[illegible]kylene, arylene, alkenyle[illegible]

[illegible] proviso that m + t = [illegible]

[illegible]=0, 1 or 2, n [illegible] =1 or 2 with the proviso [illegible]

[illegible]nd d =0, 1 or 2 with the [illegible]

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[illegible]

ıam, Lexington, Mass., assignor [illegible]

Reexamination Request No. 90/000,973, Mar. 25, [illegible]

[illegible]xamination Certificate for Patent No. 4,546,612, [illegible]

15, 1985, Ser. No. 581,704, Feb. 21, 19[illegible]

[illegible]

[illegible]tional, Inc., Darien, Conn.

Reexamination Request No. 90/001,122, Oct. 2[illegible]

[illegible]xamination Certificate for Patent No. 4,596,260, [illegible]

[illegible]

[illegible]kebe, Berkeley, and Thomas T. Fetters, Lomb[illegible]

Ill., assignors to Continental Can Company, I[illegible]

[illegible]orwalk, Conn.

Reexamination Reque[illegible]

[illegible]xamination Certificate f[illegible]

[illegible]

[illegible]s represented b[illegible]

[illegible]

[illegible]pted to detect a signal transmitte[illegible]

[illegible]

[illegible]io V. Sartoli, Andover, N.J., assignor to The Un[illegible]

America as represented by the Secretary of t[illegible]

[illegible]ashington, D.C.

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[illegible]wport Beach[illegible]

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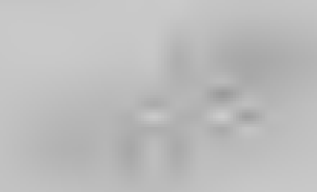
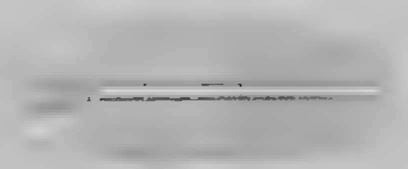


L AGENT DETECTING PROJECTI

an, Stroudsburg, Pa., and Thomas A. Dore

assignors to The United States of America as

r the Secretary of the Army, Washington, D.C



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weight of the

vessel and of

FIBER OPTIC ATTENUATOR

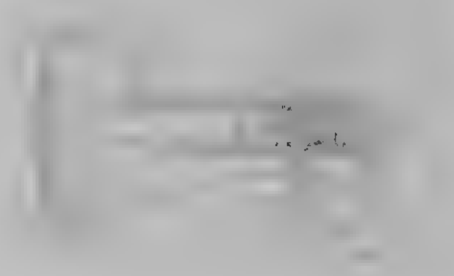
Michael C. Pitruzzello, Huntsville, and Carolyn S. Rasores,
Guntersville, both of Ala., assignors to The United States of
America as represented by the Secretary of the
ington, D.C.

Filed Oct. 23, 1987, Ser. No. 115,9

Int. Cl.⁴ G0

David L. Riggs, both

nited States of America



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Continuation-in-part

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thnder, Brooklyn, N.Y., assignors to The United States of America as represented by the Secretary of the Army, Wash-

or use in an

providing an output at their cor

first inverting

controlling means respecti

puts of said third and four

al value is reached and the

signal abruptly changes to appr

WER ON RESI

llipsburg, N.J., assignor to The United

represented by the Secretary of the Ar

led Jan. 14, 1987, Ser. N

Int. Cl.4 H03K 5/

urce providing a power supply signal which upon

pplication increases from zero volts to some pre

mined constant value, said power supply signal

r bus and referenced to ground,

it comprising a first means for dividing

eans for controlling, said first voltage

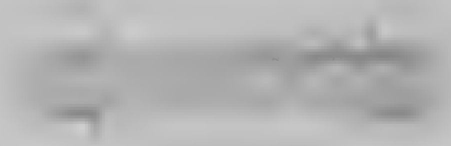
ELECTRICAL LEA

Keller, Box 213, R.D. 2, Center

Joseph M. Morabito, 1236 Moffit Ave., Bethlehem, Pa

Filed Aug. 31, 1984, Ser. No. 645,829

Int. Cl.4 H01R 9/00; H01C 1/144; B23K 35/22; H01R



pad formed on a substrate comprisi

for clipping unto the pad, a layer consist

formed over at least some area of said portion

µm, and a layer of solder including tin

IGNALS BY BACK

SCATTERING

ete, Calif., assignor to Th

erica as represented by the United States Depar

ergy, Washington, D.C.

Filed Sep. 2, 1986, Ser. No. 902,8

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Re. 32 7

John A. Bott, 931 Lake Shore Dr., Grosse P

Original No. 4,440,333, dated Apr. 3, 1984, Ser. No. 485, Apr. 18, 1983. Continuation of Ser. No. 242,138, Mar. 9, 19 abandoned, which is a continuation of Ser. No. 56,373, Jul. 1 1979, abandoned, which is a division of Ser. No. 924,072, J 7, 1978, Pat. No. 4,182,471, which is a division o 43,602, Nov. 22, 1976, Pat. No. 4,099,658, which is ation of Ser. No. 486,415, Jul. 8, 1974, abandoned. A for reissue Jan. 15, 1986, Ser. No. 819,052

The portion of the term of this patent subsequent to A has been disclaimed.

Int. Cl.^{4} B60R

slats and said body surface, and sa means including integral tie down m *any of said slats,* directly fixedly sec [and] operat of said carrie cles dispose

Tokyo, Japan

Original No. 4,6

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ociates, Costa Mesa, Calif.
d No. 4,488,275, dated Dec. 11, 1984, Ser. No. 454,521
30, 1982. Division of Ser. No. 298,405, Se
4,439,848, which is a continuation of S
18, 1980, abandoned, which is a continu.
1978, abandoned. Application f
752,437
rm of this patent subsequent to N
1999, has been disclaimed.
Int. Cl.^{4} G11B 7/095, 21/10
16 11 Claims

to the first and second tracks, an

s, Inc., Rowley, Mass.
Filed Jul. 11, 1986, Ser. No. 8

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PATENTS

GRANT [illegible]

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4,754,4

ZIPPER PADS FOR HANDS

50 E. Thunderbird Rd., Suite 4.

Jun. 12, 1987, Ser. No

Int. Cl.^{4} A41D 13 [illegible]

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1092
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JL
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1988
UMI

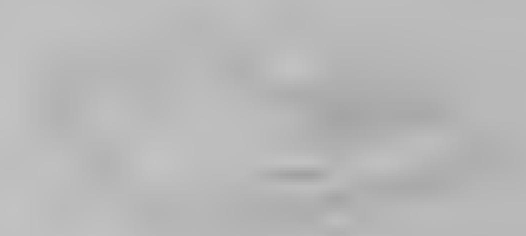
4,754,50
FLATABLE BATH
bowen, Valley View Cottage,
ngbridge, Hampshire, England

Continuation-in-part of Ser. No. 836,405,
bandoned, and a continuation-in-part of Ser. N
5, 1986, abandoned. This application Oct. 13,

wall

4,754,503
UPPORT FOR CHILDREN

pporting a child
n a supporting



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4,734,549
FLAINER SEG F
Bishop Ct., Novat
lo. 723,109, Apr

The portion of the term

Int. Cl.

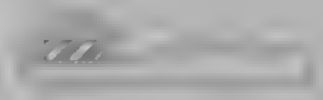
naterial and the relative cross
ponent and the associated

led Mar. 6, 1986
Int. Cl.⁴ A47C

otating said rotary table so that one o
disposed immediately below said dis

ction being formed of a flexible
rally vertical portion having a

the apparatus



TIBLE TO B
00, Min Sheng E. I
iled Sep. 10, 1986, Ser. No. 90
Int. Cl.⁴ A47G 9/04 A63H

cell, disposed in the central portion of
air cell having a side extending to

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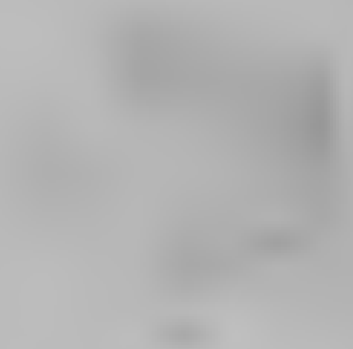

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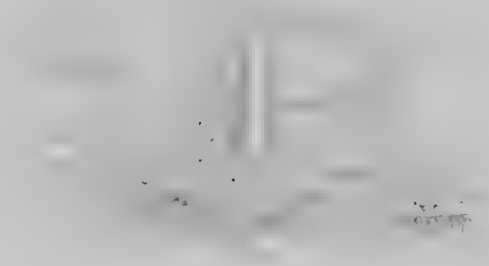
rd James F. Barnes, Anderson,
he Singer Company, Stamford.

nd support wheels, mounted on said chassis intermed
said first support wheels and said vacuum nozzle re
n, and having
vable in a subst

rollably rotating said second support

l Aug. 27, 1986, Ser.



formed through said partition wall,
a water storage tank and a trash conveyor supported on sa
frame and being inserted between said cab and
power driven rotary
contact with a surfa
to said trash conveyor,
said conveyor extending between a top end thereof in com
munication with said opening in said container and
bottom end thereof substantially level with said brushes
said conveyor with said bottom end thereof being adapted t
receive trash being conveyed from the brushes them

4,754,522

DERS FOR SELECTIVELY P
DOORS AGAINST CLOSURE

Richard Hucknall, 3 Fai
Filed Dec

n follower pivotally co
and first and second ho
onnected between said door and a fixed su
urfaces and said cam follower having cooper
urfaces that are maintained disengaged at al
leased during opening

having an elliptically formed hole on the
f with a slit provided at both sides of said
neans provided at one
formed at the two

rting sheet for supporting the
having a hole on the center
he slits provid
wards on the

ITH PIVOT HING
tern, and Raymond A. J
assignors to The Chambe
mhurst, Ill
Filed Oct. 6, 1986, Ser. No. 915,
Int. Cl.4 E05D 7

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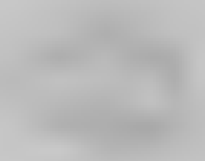
4,754,527



d direction of travel are at less
with said pairs being disposed

ar to said no

n extension along said second edge of said
with respect thereto toward the same side o
said lip and extending further from said plate than s

4,754,529
BUNDLING OF OBJECTS
Joseph R. Paradis, Holden, Mass., assignor to Dennison M
facturing Company, Framingham, Mass.
Continuation-in-part of Ser. No. 167,890, Jul. 14, 1980
application Aug. 27, 1981, Ser. No. 29
Int. Cl.⁴ B65D 63/

STRAP TI

plate being bent near the ma

ie clamping element free end toward said

Int. Cl.⁴ A44B

. Cl. 24—30

A tie down comprising

VOL 1092 ISS 1 JL 5 1988 UMI

p. of Germany, assignors to MET
lin and Munich, Fed. Rep. of

ested against

aminary Rd., Br

Jan. 15, 196

posing flat surfaces and made of mate-
length and elasticity having the ends.
eans, formed so that the upper member
med and oppos-
mber having a

two members when snapped
faces parallel to one another;

1. A method for the embelli
trip, utilizing a continuous meta
le length having coined imprints t

ioning said continuous metal stock
a discrete length having coined im
support
tensioning said continuous metal stock
a discrete length over the support,
injecting a freezable liquid between the continuous met
stock or the metal strip of a discrete length and th
port until said com
stock or said metal

mbe nuous metal st

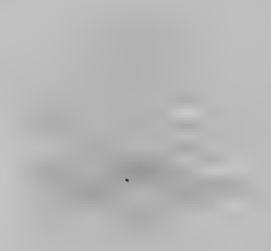
4,754,536

APPARATUS AND METHOD FOR CONNECTOR VARYING DIMENSIONS

Josita M. Goyert, Elizabethtown; Daniel B. Grubb, Humm town; Richard L. Schaeffer, Carlisle, and Joseph F. Stachura, Palmyra, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa

Filed Dec. 23, 1986, Ser. No. 945,588
Int. Cl.4 H01R 43/04

with each member of the family hav
terminal positions and said housing havi



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omowoc, all of Wis., assignors to
nd, Wis.

Int. Cl.⁴ B21D 39

Sylvester A. Weber, Pleasant View, Utah, assi
house Electric Corp., Pittsburgh, Pa.
ed Jan. 30, 1987, Ser. N

4,754,54

)F MAKING I

COLLAPSIBLE MA

pirs, Springfield, Mo., assi
ayton, Ohio
Continuation of Ser. No. 880,218, Ju
which is a continuation of
abandoned, which is a conti
1980, abandoned, which is a contin
Dec. 18, 1978, abandoned. This app
No. 94 94

of making an expandible and
g the steps of providing a cent

ermeshing fingers on
operate to provide a s
tside surface at each of an
ud supporting surface at each effect
gitudinal gaps which extend the ful
adinal segments, and machining said s
ciated fingers at a position intern
iameter and a maximum effecti

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OF MAKING

assignors to Digital Equipment Corporation, Maynard,

om one side of the matrix to

Central Park West, Apt

1, 1986, Ser. No. 936,7
Cl. B29B 19/4

ise to
and a
n which engages in
of said head element
ement and therefore

4,754,548

FLEXIBLE, SECTIONALIZED CONTOUR RAZOR

Continuation-in-part of Ser. No. 773,871, Sep.
abandoned. This application Dec. 8, 1986, Ser. N

a wide, unbroken, shaving swa

d

ns carried by said handle means, and
ree or more individual blade-housing me
adapted to n
conform to
carried by sa
ual blade-housing means are arran
other so that, in any single shaving st
tions of shaving surface caused by
indi

4,754,549

DRIVEN CHAIN SAW HAVING AN ANTI-KICKBACK SPROCKET

Manfred Fischer, Asperg; Wilfried Linke, Winnenden, and W
ner Hartmann, Ostfildern, all of Fed. Rep. of Germany,
signors to Andreas Stihl, W ed. Rep. of Germany
Filed Oct. 29 115,265
Claims priority, applica f Germany, Nov. 29,
1986, 3640857

Int. Cl.⁴ B27B

U.S. Cl. 30—384

1. A motor-driven chain saw comprising
a housing,
a guide bar mounted on said housing and havin
lower edges and a nose sprocket rotatably mounted
forward end thereof,
said nose sprocket having a plurality of teeth and ea
wat
adja
a plur
form ided on said guide bar rin
edg

nd tooth gaps wher se sprocket a
ng two downward ve-link flanks f
said tooth fla

k flank viewed in the d
chain and the other one
link flank
f the teeth of said nose
h said forward and rear-
g in corresponding tooth gaps on
id tooth,
aving a tooth roof extending rearwardly
rom said cutting edge thereof to define a free angle with
a tangent to the circle traced by said cutting edge as the
ter moves around the forward end of said guide bar,
ee angle being determinative of the cut into wood
l first orientation;
east one of said drive-link flanks of each of said drive links
having a contour different from
flanks and said one drive-link flan
nfigured that said drive link with a section of its
d drive-link flank contact engages the tooth flank
ponding thereto so as to be pivotally movable
n said tooth gap from a normal first position of said
nk correspondin
ting link to a second po
load applied to the saw chain wherein sa
shifted to a second orientation on said on

body membe
body membe
generally aw
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handles being
to the more cl
to engage th
tively aroun
cutting posit
cutting edge
through the w
said driving wheel and
mounted on a body member,
ing the cutting wheel and dr
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rd the more ope
body portion of ea
recess in the other body member such that the engagem
the flange on each member in the corresponding recess
other member reinforces the can opener and substa
prevents twis
dles relative

4,754,551

CENTERING GAUGE TOO

Jimmie D. Scott, Harrison, Tenn., assignor to Spencer
Industries, Inc., Dalton, Ga.
Continuation of Ser. No. 863,740, May 16, 1986, aba
This application Sep. 2

Int. Cl.⁴ G

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ant perspective at a plurality of loca

ating said predetermined dis

4,754,553
NE MAN FIELD SURVEY INSTRUMENT
pson, 231 Banbury Rd., Columbia, S.C. 29210
Filed Apr. 18, 1986, Ser. No. 853,392
Int. Cl.4 G01C 9/12
L 33—366

one-man field survey instrumen

ved by one man across
f the two legs in contact

4,754,554
ORDINATE MEASURING MACHINE
ECTIVELY ENGAGABLE LIMITED R
FEED MECHANISM
Freddie L. Raleigh, Centerville, Ohio, assignor
Swasey Company, Dayton, Ohio
Filed Sep. 29, 1986, Ser. N

machine (1) having a seri

carry out meas
tively engagab
providing pre

eans (30,32,98,84) for moving said at l
lement (18,70,72) into engagement with

APPARATUS FOR INSPE
OF LEADED SURFACE
COMP

Calif.
May 18, 1987, Ser. No. 51,88

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in either their rest position or

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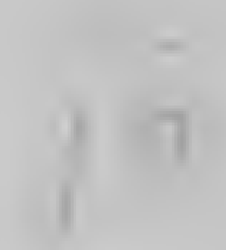


4,754,558
TREATMENT
, Mass., assignor
7, Ser. No. 74,14

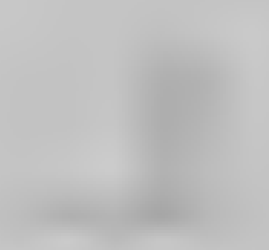
istribution plenum structure disposed in said housing struc-
re and coupled to said conditioning plenum structure,
icture being disposed adjacent
nds through said housing struc
bution plenum structure adja
fining an open port region that
the length and width of said
seal flange structure extend
be thermally
ated disposed in said treatment zone in juxtaposition to
id open port region of said distribution plenum struc-
ture

chamber units define a wall of said distribution plenum

means for flowing conditioned gas from said conditioning plenum structure into said distribution plenum struc

tructure through

4,754,559
MIDSOLE INCLUDING DEF
INHIBITING INSERTS
atal Ave., Paramus
27, 1987, Ser. N



ponent for a shoe comprising

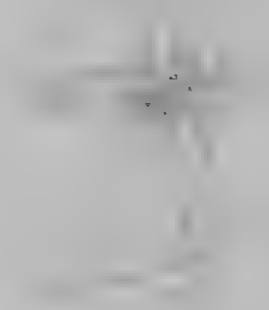
ing first and second ribs, said first rib of one of said pairs of ribs provided with at least one portion angled with

angled with respect to said inner sole and angled opp

first rib of one of said pairs of ribs and a second rib
second pair of said ribs, said first pair of ribs being

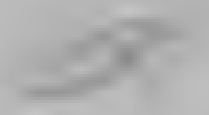
l directly underneath s

4,754,560
ECURING A SKIER'S FOOT
BOOT
Bernard Nerrinck, La Balme de Sillingy, Fran
Salomon S.A., Annecy Cedex, France
Filed Nov. 12, 1986, Ser. No. 929,44
Int. Cl.4 A43B 5/04



ary the length

4,754,561
GOLF SHOE
Pierre Dufour, Annecy, France, assig
necy Cedex, France



Jacob Fast,
Continuat

Aug. 15,

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rward
said
aid female connector element t

second tag par

REARRANGEMENT OF A
R OR SQUARE SHEETS
rland, assignor to Licinvest AG,

71 Date Jul. 11, 1986, § 102(e)
. No. WO86 03027, PCT Pub

r. 12, 1985, Ser. No. 901,533
n of this patent subsequent to Oct. 15,
2002, has been disclaimed

15 Claims

yclic rearrangement of a pile of rectan-
specially a pile of photographic prints,
second (14) frame part which are mov-
her and parallel to the principal plane of
ns which on movement of the frame
orwards remove an individual sheet
the pile and add it to the other end of the
gain, which means comprise
separating means (20/266) to separate an individual
eet (188) from the pile,
a feeding means (460) to feed sheets to the separating
eans
taining means (460, 20) to hold the individual sheet in
ainder of the pile in the

separated individual

and there is pr
transporter a

between the pr

4,754,568
DISTRESS SIGN

1 A distress sign for use on vehicles, the sign being adapted
or placement over the upper edge of a vertical movable win

substantially rigid display panels each having upper and lower marginal edges, and end edges, an elongate substantially rigid spine panel connecting said display panels together along their upper marginal edges, at least one of said display panels carrying an indicia, said display panels being disposed to converge

paced from the adjacent end edges of said panels to pr
a slot which is proportioned to receive the upper edge
indow and being configured to engage the adjacent end
of said display panels against the surface of the vehicle
y when the upper edge of the window is received in said

CLAMPING DEVICE FOR HOLDIN
MATERIAL AND THE
Thomas Gordon, Hebron, Conn., assign
pany, Secaucus, N.J.
Filed Apr. 14, 1987, Ser.
Int. Cl.⁴ G09F 17/0

U.S. Cl. 40—603 10 Claims

1 A clamping device for holding flexible sheet material and the like, said device comprising

a longitudinally elongated receiving member including
a rectangularly shaped rear wall having an inner wall surface, an upper edge and a lower edge substantially parallel to said upper edge,
a longitudinally elongated lip member having an inner lip

o said base inner surface
ce defining a receiving

nd edges being
r and at a prede
aid predetermin

terial extending betwee
g member rear wall and s
aid receiving member lip member when said
member is inserted into said receiving channel
the sheet material passes between said lip men

e and said first edge of said wedging men
along said first contact line

4,754,567
SET TRIGGER MECHANISM
rl R. Lehfeldt, 14287 Mulberry Dr., Los Gatos, Calif. 9503
and Stuart V. Allen, 213 Idona Ave., Vellejo, Calif. 94591
Filed Jan. 9, 1987, Ser. No. 1,765
Int. Cl.⁴ F41C 19/02

Cl. 42—69.02 12 Claim

A double set trigger mechanism for use in a firearm of t
sear-released striker and firing pin, co

easably latching said lev

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n of said pin about its
said second position to
ement with the element
n the element can be

FISH RETRIEVING APPARATUS

Nielsen, 15 Emery Street, Narragansett, R.I. 0288
tinuation-in-part of Ser. No. 837,894, Mar. 10, 1986,
doned. This application Mar. 4, 1987, Ser. No. 21,674
Int. Cl.^{4} A01K 97/14

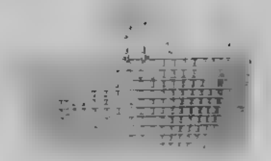
3 Claims

ius comprising

g line that is outside the
y and trigger means on

y the trigger

4,754,570



en illuminating e
the depending fr
e said illuminati

screens and globe being at least
nd having frusto conical portions
h respect to one another for at

downward removal therefrom as a sing

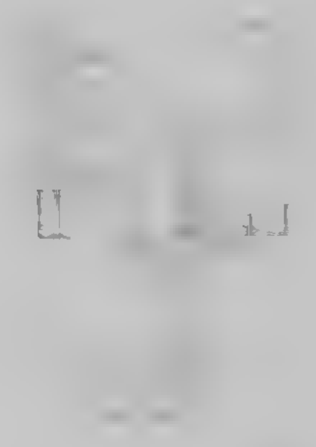
4,754,571

TERRARIUM/AQUARIUM COMBINATION

Wolfgang Riechmann, 320 Niska Road, Apt. 907, Dow
Ontario, Canada

Filed Sep. 12, 1986, Ser. No. 906,213
ms priority, application Canada, Sep. 12, 1985, 4
Int. Cl.^{4} A01G 31/02; A01K 63/00

1 47—59



combination, an aquarium and
d terrarium being in a commo

with a filter pump, at least one cond
mary pump for carrying a flow of cle
l terrarium to said aquarium, and at lea

and fil
said te
by means of an overflow of water
terrarium comprising a hydroponic
disposed between said hydroponic sub
one conduit leading from said terrarium to said f
filter, whereby water is permitted to freely f
substrate to said filter, ventilation means assoc
terrarium; said ventilation means comprising an electric f
provided with a first timer means for actuating the fan at
predetermined time and for a predetermined durati
whereby the climate associated with a selected ecosystem
be simulated

4,754,572

MOTOR-OPERATED SLIDING DOOR ASSEMBLY

Michael M. Bilt, Boynton Beach, Fla., assignor to M. Bilt Enterprises, Inc., Boynton Beach, Fla.

Continuation-in-part of Ser. No. 896,014, Aug. 13, 1986, Pat. No. 4,672,773. This application Mar. 18, 1987, Ser. No. 27,415
Int. Cl.^{4} E05F 11/00

U.S. Cl. 49—358

10 Claims

1. A motorized drive unit for a sliding door section comprising

ally operable means mounted on sai
bly and selectively operable to raise or l
housing assembly on said door section, whereb
tion said wheel in or out of engagement with t

BASIC UNIT FOR THE ERECTION OF A SLIDING-DOOR

Henricus F. van Rooij, Rode Kruislaan 4, 1111 PB Diemen, and Johannes J. M. Kompier, Joshof 30, 4813 EZ Breda, both of Netherlands

Filed Dec. 9, 1986, Ser. No. 939,639
Claims priority, application Netherlands, Dec. 13, 1985, 8503437; Jul. 4, 1986, 8601740
Int. Cl.^{4} E06B 3/42, 3/32; E05D 15/06

buildings and th
rom one another by
istance and each having a predetermined width,
ingle guiding rail extending substantially over said distance between said cabinets and over said width of both of said cabinets in a top region of said cabinets,
vo further guiding rails each extending only over said width of a respective one of said cabinets in a bottom region of said cabinets,
loor having two door panels each provided with rolling means arranged to roll on said single guiding rail so that each of said door panels
respective one of said
single guiding rail and
rails, and
eans for fixing ea

able along said base, a wheel slide (400) mo
riage and movable toward and away from t
a grinding wheel (501) rotatably supported
said apparatus being
cluding a chamber (3
plurality of elongated guideways (9
movement of said wheel slide (400)
workpiece (W), said wheel slide (40
and relatively movable sections (401, 4
(501) being rotatably mounted on sa
wheel slide, and adjustment means (4
section (401) of said wheel sl
402) of said wheel slide to
(B) of rotation of the grinding
rotation of the workpiece (W), said g
having first bearing surfaces (916, 9
parallel to the axis of rotation of the g
bearing surfa
rotation of th
wheel slide (40
guide moven
said second s
said second bearing
slide in said chamber
ble to pivot said first
about an axis (G) extending
surfaces (920, 922) and perpe
of the grinding wheel (501)
of the axis of rotation of the g
of rotation (A) of the workp
interconnecting said first
wheel slide (40
between said f
operat
mean

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assignor to Robert Bosch GmbH, Stuttgart

vement toward

slidably mo

positions of sai
he orientation o
said grinding wheel an
be controlled by a use

isted to engage one of
l to said housing and
o that a rolling motion
aid housing, such that
to the grinding disk

cted grinding

tric drive only

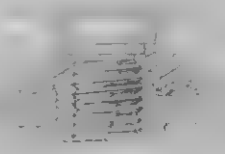
4,754,576
OPTICAL FIBRE GRINDER

dell, Harrow; Alan E. Green, Uxbridge, and Cyril
dgware, all of England, assignors to The General
mpany, p.l.c., England
Filed Dec. 12, 1986, Ser. No. 941,053
priority, application United Kingdom, Dec. 13, 1985,

ng the grinding wheel

4,754,577
DISPOSABLE FINISHING ARTICLE HAVING AN INTEGRAL MOUNTING HUB INCLUDING IMPROVED PRESSURE CAP

Joseph H. MacKay, Jr., 17551 Cabela Dr., San Diego, Calif
92127
Continuation-in-part of Ser. No. 5,813, Jan. 21, 1987, which is a continuation-in-part of Ser. No. 847,793, Apr. 3, 1986, Pat. No. 4,694,615. This application Oct. 27, 1987, Ser. No. 113,937
Int. Cl.⁴ B24B 45
U.S. Cl. 51—168

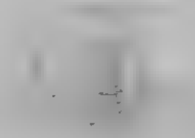


1. A finishing article having a disposable drive membe non-removably affixed thereto for mounting on a th rotatable spindle of a power tool comprising
a finishing article having a face and a back and having a centrally disposed aperture therethrough,
backing flange having an inner and outer surface and neter smaller than the diameter of said finishing article d inner surface seated on said back of said articl king flange defining a second centrally dispose aperture therethrough, and gripping means extending radially from said outer surface thereof; said first and second apertures being aligned,
g nut having a holl

t flange together
es, and

4,754,578
DISPOSABLE DEPRESSED CENTER GRINDIN HAVING AN INTEGRAL MOUNTING HUB INC A PRESSURE CAP

Joseph H. MacKay, Jr., 17551 Cabela Dr., San Di
92127
Continuation-in-part of Ser. No. 847,793, Apr. 3, 198 4,694,615. This application Jan. 21, 1987, Ser. N
Int. Cl.⁴ B24B 4



member non-removably affixed th threaded rotatable spindle of a powe
a finishing article having a face and a back and havi ly disposed aperture therethrough,
flange having a diameter smaller than the finishing article and defining a s l aperture therethrough, said n said back of said finishing artic ligned,
hollow internally threaded body nds and a first radially outwardly ling from said first end of said g through said first and second from said face toward said back of said finishing articles with said radial flange seated against said face; ans protruding ouwardly form said second end of sai body to non-removably secure said retaining nut and said acking flange together on said finishing article without he use of adhesives and allowing relative axial movement

engagement with said
nd backing flange whe
n said spindle to cause said backing fla
to move toward each other to co
le therebetween as operative lo

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4,754,581

d hood, said hood includ- le support being mounted ding generally pa urface grinding including a grinder chambe ement of said grinder and said thereof and a swarf collection

rinding swarf is directed during said swarf deflection plate deflect- rf introduced thereto, whereby grinding m entering said duct means, a vent in said mber connected to said duct means

E WITH ADV

rmel, N.Y., assig
of F. G. Smith
res, Inc. and O. M. Edwards Compa
e, N.Y., a part interest to each
tion of Ser. No. 763,548, Aug. 8, 1985, abandoned. T
application Feb. 20, 1987, Ser. No. 18
Int. Cl.⁴ E04H 1/14

walls, front and rear outside sidewall being edges of its perimeter, a translucent sheet material covering open area between the edges, said inside sidewall having a plurality of openings and said box-like enclosure having d means positioned betwee sidewall whereby light from light source means passes outwardly toward the outsid wall to illuminate the translucent sheet materia inwardly toward the inside sidewall to illumi the telephone enclosure by passing through said plurality openings to illuminate effectively the inside of said telephone enclosure and said shelf

4,754,583

ROOF STRUCTURE FOR HOUSING UNITS

Louis J. Jenn, Indianapolis, Ind., assignor to Atrium Structures Inc., Indianapolis, Ind.

inuation-in-part of Ser. No. 786,196, Oct. 10, 1985. This application Oct. 10, 1986, Ser. No. 917,781
Int. Cl.⁴ E04B 1/32

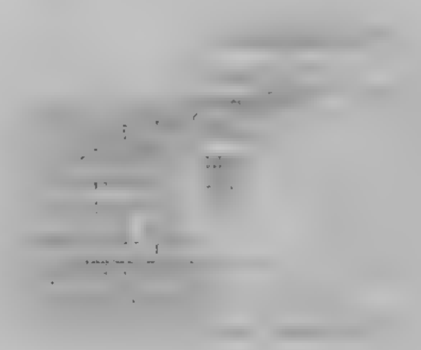
r use with dwelling un ud roof section being one s which are sequentially arranged, said roof sectio

substantially congruous, unitary main body por ach of said main body portions having a corre first edge, opposed second edge, center edge,

4,754,584

MODULAR SECURITY CELL

William D. Newton, II, Tulsa, Okla., assignor to Unosa Tulsa, Okla.
Filed May 29, 1986, Ser. No. 868,53
04C 2/38 E04B



a rearwardly extending transverse frame, said frame defining top and bottom members and first and second vertical side members, said first side member having a plurality of vertically ng holes, said sec paced connector r receiving holes, with said connector attachment holes to c connector means, said second side member

Kabushiki K
Continuation

Claims priority, Japan,

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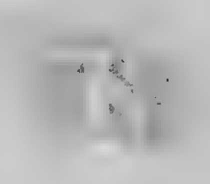
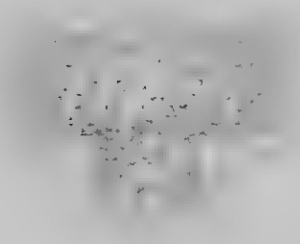


4,754,587
THERMAL BREAK PANEL
ser, 515 Hampshire Rd., Akron
ned Dec. 22, 1986, Ser. No. 944
Int. Cl.⁴ E04C 1/00



by said frame members,
liscrete layers, one primarily to
ond primarily to
facing sheet and

transversely outwardly of that
t is secured, through said
nto the said thermal ins

layer
having front and rear m
l extending transversely between said

n strips of each frame member have an

pheral edges of said facing sheets overlie, and are
ed within, the mounting recess in the obverse face
each frame member defining the
site panel.
at least an interim connection
en said front an
ng recess in th
r defining the p

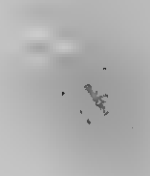
nterim anchor means, and
een said interim anchor flanges p

f the mullion strips without said bridge

4,754,588
FOUNDATION PILING SYST
gory, 2400 S. Monta Vista, Ada,
Filed Jun. 26, 1987, Ser. No. 67
Int. Cl.⁴ E02D 27/0

g, comprising a plurality
le ground and having
ecting from the ground, two flanges extendi
rically opposite portions of the p
aid piling members, each flange ha
openings extending therethrough, four horizontally e
bar members respectively extending through said op
said bar members being formed in two spaced rows of
members per row, said rows being spaced l
bar members of each row being spa
tially U-shaped stirrup bar extending

r Leth, Aalborg, Denmark, assignor to l
A/S, Aalborg, Denmark
of Ser. No. 740,269, May
application Jan. 13, 198
ty, application Denmark



e having oppo-
p means on at

plate being adapted to be arranged o
ping and partly being overlapped by
said roof defining an attic thereunde
means including a strip of upr
said plate on regions thereof wl

p of upright syn
adjacent plate

4,754,590
HOD AND APPARATUS FOR WATERPROOFIN
CONCRETE
R. Gordon, 530 Lolita Gardens, #805, Mississauga, (
iled Sep. 15, 1986, Ser. No. 907,
Int. Cl.⁴ E04G 23/02

method of providing a climatically compatible, l

CO
STRU

1982, abandoned, whi
May 31, 1979, aband

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delstein, and Wolfram Scheler
of Germany, assignors to Siemen
and Munich, Fed. Rep. of Germ
Mar. 9, 1987, Ser. No. 23,629
plication Fed. Rep. of Germany

mounting flank attaching the

re to the bridge

4,754,593

MAKING-AND-FILLING PACKAGING APPARATUS

Hisamitsu Ishihara, Tokyo; Hisafumi Kobayashi, and Nobuaki Kanno, both of Chiba, all of Japan, assignors to Tokyo Automatic Machinery Works, Ltd., Tokyo, Japan
inuation of Ser. No. 825,731, Feb. 3, 1986, abandoned. Th
application Aug. 5, 1987, Ser. No. 81,549
aims priority, application Japan, Dec. 28, 1985, 60-2995

Int. Cl.⁴ B65B

g apparatus in
ig material is f
g member and intermittently
nd the formed tube is filled with a material to be pa
when the filling is completed, the tube is sealed along th
thereof, comprising web delivery means disposed o
travelling path downstream of the forming member a
suring means disposed upstream of the delivery mea

letermined length of t

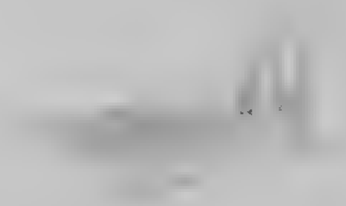
ounting plus pulse at the forward rotation of the
inus pulse at reverse rotation of the encoder

4,754,594

Z-STRETCH WRAPPING SYSTEM

Joseph R. Lancaster, Louisville, Ky., assignor to Lantech, Inc.,

Continuation of Ser. No. 125,275, Feb. 27, 1980, abandoned
This application Jun. 3, 1986, Ser. No. 871,149
Int. Cl.⁴ B65B 11/04



1. A process for wrapping a web of stretched mater
load comprising a plurality of stacked units to form

stretchable material on a dispense
ing end of a web of said stretchable

g said web of material into a configuration having
dges of concentrated bands of material and an
l connecting membrane, the width of the configu
eing less than the width of the original material

id material dispenser and stopping said material
r's movement at regular intervals to form a plural-

4,754,595

OF STERILIZING AND STORING ART

Roger S. Sanderson, 24662 Santa Clara, Dana Point
92629
Division of Ser. No. 483,266, Apr. 8, 1983, Pat. No. 4,583,643.
This application Apr. 21, 1986, Ser. No. 854,210

and closing the bag except for the top and bottom

g a removable actuator on said bag adjacent to
said openings with a valve element carried by each

bag with the container therein into an autoclave
th the bag openings open,
in the autoclave and to
the bag;
condensation to drain from the bottom opening

te bag openings in the autoclave at the end of the
sterilizing cycle f said actuators to prevent
nsterile environ ing the bag

4,754,596

PACKAGING METHOD AND APPARATUS

Masaru Yasumune, Mihara, and Junsaku Yamada, Onomichi, both of Japan, assignors to Furukawa Mfg. Co., Ltd., Tokyo and ECS Corp., Hiroshima, both of, Japan
Filed Jan. 28, 1987, Ser. No. 7,637
Int. Cl.⁴ B65B 31/00
Cl. 53—434 9 Clai

plurality of vacuum
d a support plate and disposed on a periphery of a
h comprises steps of:
feeding each article to be packaged onto a suppor
of a vacuum chamber at an angular position of the turnta
ble in a state wherein the article is accommodated in a
packaging bag, at least one end of which is opened,
losing said vacuum chamber after feeding of each articl
he vacuum chamber;
fter discharging an amount of air from the vacuum
chamber containing the article into a forward vacuum
chamber which is disposed at a position opposite
vacuum chamber with respect to an axis of the t
pressure of the vacuum chamber is decreas

uum chamber w

4,754,597

SOLID SHAPED ART

Ian R. Buxton, High Wycombe, and Harold Feldman, both of England, assignors to John Wyeth & Brother Maidenhead, England
Continuation of Ser. No. 445,138, Nov. 26, 1982, aba
This application Mar. 30, 1987, Ser. N
Claims priority, application United Kingdom
8137525

U.S. Cl. 53—
1. A pr
prede
compr
first solvent
material that
solvent from t

from said sol

4,754,598

PACKING AP

packing apparatus comp

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at the downstream e
d bottle guiding mean

the outermost
row said fi

leans each bein
et to said suspe

tioned adjacent
ling channels, ea
cooperating with one of s
g to define a plurality
ent the downstream end
id bottle guiding means to receiv
om as said conveyor means urg
along, said first suspension bar means a
spension bar m
nd away from ea
ng position and a bottle releasing position, respe

age drive means operatively mounted with respect
pension carriage means and said neck holding
nt thereof between a top position
on slots adjacent the downstream
f said guiding channels and a bottom position l
vertically downward therefrom to facilitat
f bottles retained within said bottle suspensi
l below said suspensi
ve bottles therefr
etween a lower

drive means operatively secure

olding

first and second suspension bar
ttle holding position ready to

e to said neck
er than the top

sponsive to said neck holding means being in the

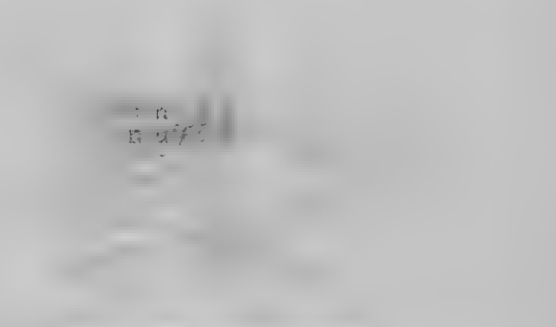
4,754,599

YARN TWISTING APPARAT

swagen, Fed. Rep. of Germany, assign
H, Remscheid, Fed. Rep. of Germany

Filed Apr. 7, 1987, Ser. No. 35,372

Claims priority, application Fed. Rep. of Germany, Apr.
1986, 3612321; Oct. 18, 1986, 3635460



anted adjacent said spindle

drive means for rotating said spind
and for advancing a yarn from a
package carrier to said yarn guid
accumulation means at a speed coordina
tional speed of said spindle, and while bal
about said central axis as it advances between the pack
l yarn guide, and
ns for monitoring the amount of yarn received o
accummulation means and for operating sa
pindle and deliver
whenever the an

APPARATUS

erard Y. G. Barbier, Morangis; Gerard J. P. Bayle-Laboure,
Avon; Michel A. A. Desaulty, Vert Saint Denis; Rodolphe
Martinez, Perigny s/Yerres, and Jerôme Perigne, Vaux le
Penil, all of France, assignors to Societe Nationale d'Etude et
de Construction de Moteurs d'Aviation (SNECMA), Paris,
France

Filed Mar. 20, 1987, Ser. No. 28,676
y, application France, Mar. 20, 1986, 8
t. Cl.⁴ F02C 9/00, 7/0

Axial-centripetal swirling apparatus for directing
a combustion chamber of a gas turbine engine in a
fashion so as to thoroughly mix the air with fuel, the
bine having at least one fuel injector, a combustion c
and an intermediate bowl-shaped member interconnec
fuel injector and the combustion chamber defining an
ment cooling chamber and air intake orifices ther
sing
cal member having a longitudin
least one fuel injector extending
e generally perpendicular to the at least one fuel

ven number of swirler vanes formed on the first
generally cylindrical member extending in a gene
adial direction defining an even number n of air
erebetween, and
erally circular cover member having n/2 ci
barriers and n/2 planar barriers thereon mo
first generally cylindrical member such that the c
ferential barriers extend between radially outermo
f adjacent swirler vanes and the planar barrie

a planar annular ring carried by

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ing and the c

aust opening and the propulsive thrust thereof

ollaad Hills, I
No. 75,78

prime mover source of rotary power and s
r for an intermittently driven load, said systen

ent reverse flow, with relief-valve discharge t
pon achievement of a predetermined high pressur

f variable-rate variety and having
w capacity than said first pump
id accumulator to said motor vi

d motor to said accumulator via
check valve oriented to prevent reversal of fluid
flow, and
ng valve interposed between said motor and said
l check valve for transient diversion of return flow
ip, whereby to transiently enable enhanced load-
iting torque from said motor,
hereby motor-running speed may be selectivel
ined by said second pump, and, upon reducing th
p, reflected loa
return fluid

4,754,6
AKE BOOSTE
CONDUIT RETURN S
Donald M. Flory, Arcanum, Ohio, assi
Corporation, Detroit, Mich.
iled Apr. 29, 1985, Ser
Int. Cl.⁴ B60T 7

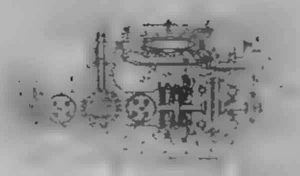
1. In a hydraulic power brake booster having a housing, a bore formed in said housing and having a bore wall, a power
eived in said bore and having a dynam
ling between said power piston and sai
bore wall, a power chamber in said bore defined in part by
side of said power piston, a brake fluid reserv
means in said housing adapted to control hy
said power piston, a pump operativ
nd from said reservoir and operatively
fluid under pressure to said power cham

annular conduit retainer mounted in said bore on the
posite side of said power piston from said power cham-
forming with said bore wall a first annular cham
t said retainer,
ond retainer seals respectively located on axially
said first annular chamber and sealing
ainer and said bore wall,
ving an extension extending axial
nduit retainer an
h to define betw

urther having a recess therein defined by
h a control valve reciprocably received
and forming a part of said control valve means,
nnular chamber formed about said control valve
d side wall of said recess
d second control
ly opposite sides
procably sealing betwee
ss side wall,
ntrol valve seal being moveable axially into said
nnular chamber upon actuating movement of said
alve in said power piston recess to fluidly con
d second annular chamber and said power cham-

said power piston having a third annular chamber formed in said power piston recess about said control valve with the
f said third annular chamber nearer said power
forming a first valve portion;
valve having a shoulder thereon positioned in

4,754,60
HYDRAULIC BRAKE SYSTEM
olfram Seibert, Pfungstadt; Norbert Ocvirk, Offenbach am Main; Juergen Schonlau, Niedernhausen, and Guenter Trach, Offenbach am Main, all of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt Am Main, Fed. Rep. of Germany
Filed Mar. 12, 1986, Ser. No. 838,687
Claims priority, application Fed. Rep. of Germany, Mar. 12,



hydraulic brake system comprising a pedal-operated booster (5) which is connected with a master cylinder (3)
having working chambers t
system (13), a
reciprocable i
an auxiliary pressure is established w
foot pressure (F) applied to the pedal
and said hydraulic brake system bein
brakes (14, 15, 16, 17) connected to th
with a filling stage cylinder (18) with
displaceably housed therein, the two-sta
large stage piston and a small stage piston, a pr
(21) provided in front of the large stage piston
filling chamber (22) arranged in front of the sma
(84), the filling chamber (22) communicating by way of a pressure line (25) with one of the working chambers (27) of the master cylinder (3) and a brake line (28), wherein the booster

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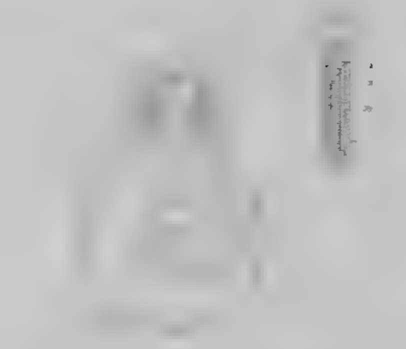
[illegible] otor connected to said compres [illegible]

4,754,607
POWER GENERATING SYST[illegible]
Mackay, Rancho Palos Verdes, Calif., as[illegible]
[illegible] Inc., Morris Township, Morris County [illegible]
[illegible] Dec. 12, 1986, Ser. No. 940[illegible]
Int. Cl.⁴ F02C [illegible]

[illegible] fuel and having [illegible] for receiving fue[illegible] [illegible] ed compressed air and [illegible] [illegible] means connected to said heat exch[illegible] [illegible] for combusting heated compressed fuel and air [illegible] [illegible] ns, for converting energy released from combus[illegible] [illegible] nical energy, and connected to said heat [illegible] ns to provide heat to said compressed air [illegible] [illegible] for converting the mechanical energy [illegible] ed by said turbine means into electrical energy [illegible] [illegible] heat exchang[illegible]

[illegible]
[illegible] FILM BEARING FOR STIRLING CYCLE COMPRESSOR PISTONS
K. Bertsch, 68 S. Shaker Rd., Harvard, Mass. 01451
Filed Jan. 21, 1987, Ser. No. 6,006
[illegible] portion of the term of this patent subsequent to [illegible] 2003, has been disclaimed.
Int. Cl.⁴ F25B 9/00

A cryogenic refrigerator for operating at cryogenic tem[illegible] [illegible] which has a piston [illegible] a wrist pin, said [illegible] piston and forming [illegible]



4,754,609
[illegible]H EFFICIENCY METHOD AND APPARATUS FOR [illegible]AKING AND DISPENSING COLD CARBONATED WATER
William J. Black, Coon Rapids, Minn., assignor to The Cornel[illegible] [illegible]us Company, Anoka, Minn.
Continuation of Ser. No. 912,284, Sep. 29, 1986, abandoned. This application Sep. 14, 1987, Ser. No. 96,982
Int. Cl.⁴ F25D 3/[illegible]

[illegible] ated and dispensed.
[illegible] providing a single and common supp[illegible] [illegible] frigerant gas,
[illegible] tely precooling a flow of the water from a supply [illegible] rature down only to an intermediate reduced mod[illegible] [illegible] emperature which is safely above freezing and [illegible] a desired serving temperature in a high thermal [illegible] cy first and discrete precool heat exchanger, sai[illegible] [illegible] diate temperature being always above 35 degrees [illegible] 2 degrees C.),

[illegible] the precool and final heat ex[illegible]

4,754,610
[illegible]PPARATUS AND METHOD OF ICE PRO[illegible] DIRECT REFRIGERANT CONTACT WITH AQUEOUS LIQUID
Bryan D. Knodel, Plainfield, and Joseph A. Costenero, Woodridge, both of Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.
Continuation-in-part of Ser. No. 727,537, Apr. 26, 1985 [illegible] This application Apr. 17, 1986, Ser [illegible]
Int. Cl.⁴ F25C 1/00

[illegible] g a liquefied refrigerant in the form of very fine drop[illegible] s to an aqueous body through a refrigerant feeding [illegible] vice having an outlet orifice, the refrigerant being at a [illegible] perature above the freezing point of the aqueous body [illegible] to the feeding device, while the liquefied refrig[illegible] [illegible] ery rapidly vaporized and ice is produced, by [illegible] om the adjacent water to the refrigerant, [illegible] ng any significant amount of refriger[illegible]

Claims prior[illegible]

[illegible] rin W. Dibrell, and [illegible]

1. Th[illegible] centrifu[illegible] (1) su[illegible] de[illegible]

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tive and negative torques on s

t, and

l expander engine.

PROCESS FOR PHYSICAL DEODORIZATION AND/OR PHYSICAL REFINING OILS AND FATS ROUGH DIRECT CONDENSATION OF THE VAPORS

r A. L. Brito, Sao Paulo, Brazil, assignor to Sanbra
ociedade Algodoeira do Nordeste Brasileiro S.A., Brazil
Filed Mar. 19, 1986, Ser. No. 841,254
aims priority, application Brazil, Sep. 23, 1985, 85 0468

TOR-DRIVEN ROOM WARMING/C HOT WATER SUPPLYING APPARAT

hi Yuyama, Shizuoka, Japan, assignor to Mitsubi
ubushiki Kaisha, Tokyo, Japan
Filed Feb. 9, 1987, Ser. No. 12,281
laims priority, application Japan, Feb. 7, 1986
t. 19, 1986, 61-193133
Int. Cl.⁴ F25B

r-driven room-warming/cooling and hot aratus which comprises

ng water circulating circuit connected to the prime nd having means for circulating cooling water to e motor

circuit separate

ircuit so as to perform mutual heat exchanging of th

ting circuit,

water in said supplied water circuit is heated and

4,754,615

R HEAT SHIELD AND MOUNT FOR PLASTIC LINER REFRIGERATOR SUPPORT

William J. Linstromberg, St. Joseph, Mich., assignor to
pool Corporation, Benton Harbor, Mich.
Filed Aug. 10, 1987, Ser. No. 83,448
Int. Cl.⁴ F25C 1/24

1. A support for an icemaker in a refrigeration having a cabinet with a flexible liner defining a storag and having a first wall with a downwardly facing flat surfa and a second wall with a vertically extending flat surface, sa suppo

a third wall
a fourth wall connected to and angula
respect to the third wall
means for attaching the third wall to the
second liner wall,
neans for attaching the fourth wall to the d
facing surface of the first liner wall, and
ans for attaching an icemaker to the third wa

Kurt A. G. Jacobsson, Ulricehamn, Sweden, assignc
ttebolaget IRO, Ulricehamn, Sweden
PCT No. PCT/EP86/00511, § 371 Date May 4, 1987
4, 1987, PCT Pub. No. WO87/01399, P
12, 1987

-up means (5) ad
ease the actual y
ermined second tension value, said second tensi
eing smaller than said first tension value, charac

ns (6) for inhibiting the operation of said yarn

4,754,617

IT FABRIC WITH PILE LOOPS PROCESS OF PRODUCING SAME

Roland Wunner, Schwarzenbach, Fed. Rep. of Germ
signor to Liba Maschinenfabrik GmbH, Naila, Fed
Germany
Filed Dec. 18, 1986, Ser. No. 943,638
Claims priority, application Fed. Rep. of Germany

nt. Cl.⁴ D04B

arp knits with
ch and a chain

Alfred Lejeune, Tourc
Villeneuve d'Ascq, I

Claims prio

ece of textile m
is for maintain

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4,754,619

…ER REDESIGN FOR
…PET YARNS

…iled Sep. 17, 1986, Ser. No. 908,…
Int. Cl.⁴ D06B 3/…

said entry end …

…ng chamber, and
… said heat pr…

…APPARATUS
…, Japan, assignor to Yoshida Kogyo
…apan
…Dec. 30, 1986, Ser. No. 947,648
…application Japan, Dec. 30, 1985, 60…

…posed inner side

…er chamber supported from said ceiling of s…

Hiroshi Hikosaka, 376-2, Aza-Shinden, Hiruma-cho, Tushi…shi, Aichi-ken, Japan
Filed Nov. 19, 1986, Ser. No. 932,260
…ms priority, application Japan, Ja…
Int. Cl.⁴ D06B …
… 68—15…

(a) a liquid treatment bath,
(b) means for feeding a cloth in a wavily cu… liquid treatment bath and for maintaining said curved cloth close to the surface of said liquid t… bath,
(c) An upper cradle having a rectangular frame m… above said wavily curved cloth in said liquid treat… …ngular frame having laterally spaced side … in the direction said cloth is fed to said …

… of said wavily curved cloth, parallel to each other and having V-like slant surfaces forming a downward widen…

…gh holes
…rtition plates with each partit…
… said sidewalls and c…
…tal beams to one of said s…
… adjacent partition …
each downward…

…ent bath, said drive d…
the treatment liquid at …

4,754,622

VATER INLET DEVICE FOR AUTOMATIC WASHER

Richard L. Fanson, St. Joseph Township, Berrien County, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

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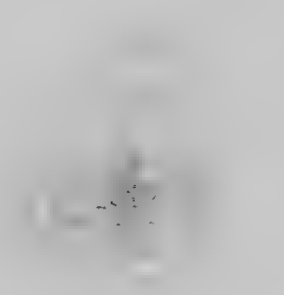
LIDING DOORS
ng, Glendale, and Nandor Gajer, Woodland Hills,
f., assignors to W&F Manufacturing, Glendale,



to locking a slic
sible with the door
ve to an adjacer

eper for stationary mounting on the door jamb,
keeper including means for receiving said latch
n
ng means for
nbers when the
noved from the

LECTRICALLY CONTROLLED LOCK
McGourty, 9570 Chimney Rock Rd., and Lawrence
rty, 6680 Linne Rd., both of Paso Robles, Calif

led Mar. 16, 1987, Ser

a latch:
spring means urging said latc
ud unlocking p
ns for moving

SHACKLELESS LOCK PR
egel, 29 Lexington Ave., Brool
Filed May 1, 1987, Ser. N

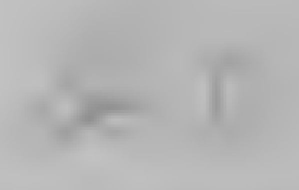
disc-type lock member received in said block, for retaining s
block on said hasp strap and said staple and preventing un
thorized entry through said door, wherein said block is p
vided with an arcuate opening through a front face and n
ingly receives an outer peripheral surface of said lock meml
and a shoulder is integrally attached to a rear face of said
member, projects outward and engages with a longitud
side of said block, so as to properly position the lock m
on the block, wherein the arcuate open
face of said block extends through a sec
said block, and a longitudinal secon
throug
and fr
a lo

4,754,627
CLOSURE FOR A VEHICLE GASOLINE
Charles A. Butler, III, 3094 Village Pine Dr.,
Calif. 92073
Filed Jun. 22, 1987, Ser. No. 64,599
Int. Cl.⁴ B65D 55/14

one another, a groove surrounding the second
ing and facing the first disk, and an upstanding

ed within the second di
nd disk opening, and

4,754,628
LUG LOCK
29 Lexington Ave., Brookl
iled Apr. 8, 1987, Ser. No. 36,36
Int. Cl.⁴ F16B 41/00



ng mechanism received in said housing, for
nauthorized removal of said nut fastener from a
said automotive vehicle when said locking mech
locked condition, and a set screw received in
ng, for retaining said locking mechanism is said hous
herein an opening is provided transversely through said
ousing and a large diameter portion of the opening freely
eives said nut fastener and a smaller diameter portion of the
opening freely receives said stud that is threaded
fastener that fastens said wheel to said vehicle

4,754,629
SAFE RELOCKING SYSTEM
den, 1776 E. 13th St., Brooklyn, N.Y. 1
Filed Nov. 10, 1987, Ser. No. 119,0
Int. Cl.⁴ E05B 63/00
S. Cl. 70—3
door means to be selec
d, bolt om a retracted non-k

LOCKING
Mitsuo Kawakami, Nagoya, Japa
sha Saikousha, Kasugai, Japan
Filed Dec. 8
Claims priority, applic

th a

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M. Jackson, Rockford, Ill., assignor to Wa
ackson, Inc., Rockford, Ill
Division of Ser. No. 8
which is a division of

ther of said me
te said die hold

event said gib from sliding in a

4,754,631

US FOR BENDING STRUCTURAL
RAILS

Rjukan, Norway, assignor to Rjukan M
ukan, Norway
Filed Mar. 30, 1987, Ser. No. 32,296
laims priority, application Norway, Apr. 7, 1986, 861347
Int. Cl.⁴ B21D 7/04

Cl. 72—149 13 Claims

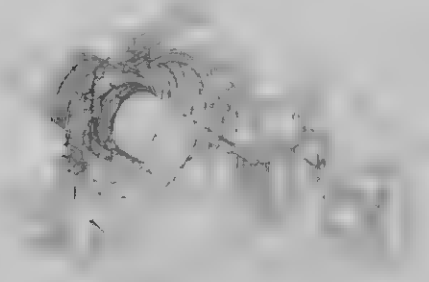
Apparatus for be g structural metal rails to form a

ereof to the m

4,754,633

APPARATUS FOR DRAWING WIRE

Alan C. Glover, Winona, Canada, assignor to Stelco Inc., H
ton, Canada
Filed Dec. 12, 1986, Ser. No. 940,838
Claims priority, application Canada, Jan. 30
Int. Cl.⁴ B21C 1/12



1. Wire drawing apparatus for drawing wire from a coil material and winding it as a coil of wire, said apparatus comprising wire take-up means on which a coil of wire to be wound, the take-up means and the coil of w wound thereon having parallel longitudinal axes, a pay-off means on which a coil of material is adapte supported with the longitudinal axis of said coil ol ported being parallel to the axis of rotat is, a rotatable wire drawing die located means and the pay-off means; means fo e about an axis of rotation, and di drive means for driving the pay-o as the wire drawing die and a

4,754,634

E FOR FORMING BE

Murata, 52-13, Nishi-Honcho, Ohta-Sh
Japan
Filed Apr. 21, 1987, Ser. No. 40,79
ity, application Japan, Jun. 26, 19
Int. Cl.⁴ B21D 41/0

form of an inv
ng leg portins (12, 12') and an
ects said leg portions (12, 12')

b) a clamping screw shaft (14) having upper and lower ends extending through said upper portion (13) of said frame

guide portions (17, 17') located on the inner mid portions said leg portions (12, 12'), said guide portions being

s (17, 17'), said element having an annular groove (27),

e) a pipe gripping member (18) that is adapted to surround and securely grip a portion of a pipe (P),

f) holding portions (19, 19') located adjacent lower extremities of said leg portions (12, 12'), said holding portions (19, 19') holding said pipe gripping member (18) in a stationary position between said leg portions (12, 12'),

g) a clasping member (21) attached to and movable with the upper end of said clamping screw shaft (14) and having two clasping legs that depend downwardly and which are

(12, 12'), and

h) means (20, 24, 25) at the upper end of the screw shaft (14) to rotate said clamping screw shaft (14) so that the lower end of said shaft will bear against and progressively press downwardly the pipe deforming pressure element (15, 16) that is located between said guide portions (17, 17') thereby applying deforming pressure against the end of a pipe (P) held by said pipe gripping member (18)

Claims priority,

n F. Kautz, Ca
both of Pa., a Incorporated, Harrisburg,
Continuation of 8, May 20, 1985, abando
This application Jun. 10,
Int. Cl.⁴ B2

U.S. Cl. 72—41

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slot open at th
crimping tool ha
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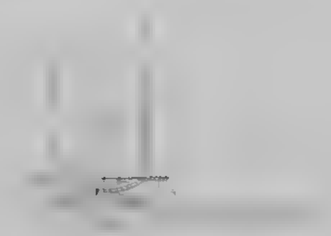
REMOVING TOOL
L. Front, Calumet City, Ill.



dent of predetermined width from

said prede-
against the

J sheet material

4,754,638

US AND METHOD FOR LEAK TESTING AUTOMOTIVE WHEEL RIMS

Semyon Brayman, Southfield, and Vladimir Sheyman, Birmin
ham, both of Mich., assignors to Antares Engineering, In
Madison Heights, Mich.
Filed May 23, 1986, Ser. No. 87
Int. Cl.⁴ G01M 3/29

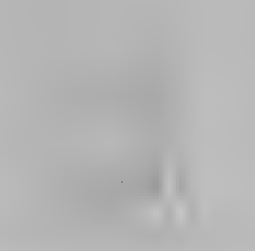
ak testing auto wheel rims for
ires, said w
body having
an annular tire bead flange on either

a fixture comprised of a housing means configured to recei and enclose a rim to be tested with a clearance spa between said housing interior and the perimeter of sa rim, said housing means including a plurality of par vely movable to allow said rim to be placed with housing and to engage said respective iges on a rim placed therein so as to establish and an exterior sealed testing chamber, sa ber comprised by said rim body inter housing, and said exterior chamber ising and said rim body peripheral wall,

aid housing parts comprising a support memb ining a surface on which said rim to be tested may placed with one of said flanges resting thereon and other of said housing parts comprises a generally cylind cal bell jar cover having an open end configured to positioned over and enclose a rim resting on said supp plate, said cover including an interior surface configur to engage the other of said rim flanges when in positi over said rim, and said housing means including sele tively actuatable sealing means acting between said sup member and said cover to create a hermetically tight herebetween; said support member including an nding ring portion configured to receive said cover

height

DEVICE FOR TESTING SUSPEN
Rich, Roseville, and Robert E. Wold, R
ich., assignors to Johnstone Pump Compa
Filed Nov. 3, 1986, Ser. No. 926,2
nt. Cl.⁴ G01N 11/00



lide chamber for a piston,
lidably disposed within the chamber and displace tween a bottom position at one end of the chambe and a top position at the opposite end of the chamber,
a first port in the bottom for admitting a charge of the suspension to the chamber,
a first plug for sealing the first port after t charge is admitted;
a second port in the body between ends for b he chamber as it is charged,
ond plug for sealing the second port
hird port in the body,
pressure g hird port for det the pressu e; and
retainer m body to retain th
it having an opening to admit a compo-
applying a force to the piston to com

4,754,640

US AND METHOD FOR DETERMIN VISCOELASTICITY OF LIQUIDS

cent Fitzgerald, Metuchen; Frank J. Matusik, Piscataway
Donald W. Nelson, Voorhees, all of N.J., and John L. Schrag
Madison, Wis., assignors to National Metal and Refining
Company, Ltd., Metuchen, N.J.
Filed Mar. 17, 1987, Ser. No. 26,869
Int. Cl.⁴ G01N 11/16

l. 73—54 10 Claims

1. A method for determining an elastic property of a viscoelastic liquid, comprising the steps of

providing a transducer comprising a transducer body and a er tip adapted to be immersed in a viscoelasti

g the transducer so that the tip oscillates with stant amplitude at the mechanical resonant the transducer, regardless of the viscous lo disposing the transducer tip in air, and d

Jacque
Orban, both of Hous
berger Technology C
Filed Feb

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86, Ser. No. 802,992

ige (4), said cas

in turn is held

l direction

ary blade

(5) secured to s

of metal target

nts displacement transducer (7) sealed

isposed so as to be opposed to said targe

it transducer (7) including a

eddy currents displacement

g of a stainless steel tube, said tube

hery, a plurality of conductors ac-

l tube, and, magnesium oxide pow

ing in the inters

e, the outer per

47), and,

cting a change in the impe-

the displacement of said

l then pro-

n propor-

Arthur R. Weeks, Jr., Waterb
Sidney D. Schwartz, Hamden; Raymond H
o, both of Danbury, all of Conn.,
n, Conn.

nol to the remot

and

processor means responsive to the signals from the second monitoring means, for controlling th said rivet setting apparatus

4,754,644

ABLE-RELUCTANCE ACCELEROMETER

Mario Valentini, Turin, Italy, assignor to Illinois Tool W Inc., Chicago, Ill.

Filed Mar. 3, 1987, Ser. No. 20,966

Claims priority, application Italy, Mar. 4, 198

Int. Cl.⁴ G01P

generating means w

are arranged facing

main magnet

mean

ma

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stor having a resistor-capacitor network connected in series across its emitter-base terminal and said coil connected ir

means for comparing tl

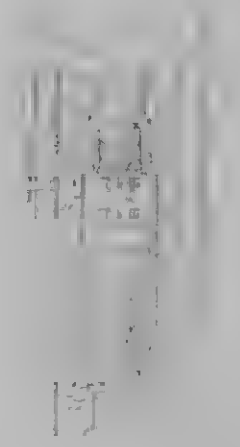
4,754,645

ULTRASONIC CHARACTERIZATION OF POLYMERS UNDER SIMULATED PROCESSING CONDITIONS

Luc Piche; Francoise Massines, both of Montreal; Andre Hamel, St-Hubert, and Christian Neron, Boucherville, all of Canada, assignors to Canadian Patents and Development Limited, Ottawa, Canada

Filed May 14, 1987, Ser. No. 49,5

Int. Cl.⁴ G01N 29/00



11. An apparatus for ultrasonically characterizing polymer

a pair of axially aligned buffer rods having opposed parallel

l from one another to define a gap for receiving a sample of a polymer,

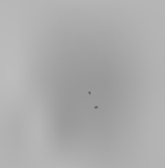
sample holding means for holding the polymer sample in confinement between said buffer rods while allowing compression or expansion of said polymer sample through axial displacement of said rods toward or away from one another, said polymer sample being acoustically coupled to said opposed end surfaces of said buffer rods;

d alignment maintaining means for maintaining said buffer

another while allowing rela

eof, said rod alignment means

tah, assignors to Quartztronics



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TRANSDUCER
larke, Eastleigh, United Kingdom, assign
tional Business Machines Corporation, Armonk
Filed Sep. 29, 1987, Ser. No. 102,455

4,754,648
TEE FOR PISTON-TYPE GAUGE
PROTECTOR
rd, Duncan, and Robert J. Morris, Lawton, both
signors to Halliburton Company, Duncan, Okla
Filed Dec. 23, 1986, Ser. No. 946,212
Int. Cl.⁴ G01L 7/16

ctor for protecting a gau … flow line, said guage pr … portion of said flow line and having a … reto, said guage protector comprising … having a bore therethrough … ring one end of the bod … cured to the other end o

annular cylindrical member having a bore therethrough in communication with the bore in the body … sageway intersecting the bore in the … member and having said guage … tion thereof and

check valve assembly connected to a … the tranverse pasageway in the … member to allow fluid to enter the tra … l member but be prevented … verse passageway through

ly including … gated valve m … piston,

an elastomeric seal retained on a portio … valve member sealingly engaging a p … gated valve member and adapted to sealingly engage … portion of the bore in the piston; and

a spring to bias the elastomeric seal retained on a portio … f the elongated valve member into sealingly engage … portion of the bore in the piston

4,754,649
TANDEM WING UNIVERSAL VORTEX SHEDDING
FLOW METER
Hyok S. Lew, 7890 Oak St., Arvada, Colo. 80005
Continuation-in-part of Ser. No. 764,890, Aug. 12, 1985, Pa
No. 4,627,294. This application Oct. 20, 1986, Ser. No. 920
Int. Cl.⁴ G01F 1/32

comprising in combination

(a) a flowmeter body including a flow passage extending from one extremity to the other extremity of said flowmeter body

and a second wing disposed across a third cross section of the flow passage intermediate said first and second cross … generally parallel arrangement with resp … aid first and se … arallel to the centr

at least one connecting member disposed generally parallel to the central axis of the flow passage, and the combination of said first and second wings is secured to the wall of the flow passage in an arrangement wherein at least one extremity of said combination of the first and second wings adjacent to the wall of the flow passage is pivotable over a small angle about an axis of pivot generally parallel … ted intermediate the first and second wings … st and second wings opposite … y of said combination of the first and second wings are secured to the wall of the flow passage, and

d) a transducer means under a pressurized contact with a

torque imposed on said vortex sensor by vortices generated by said vortex generator;

l device determines rate of fluid flow through the … g the frequency of vortex shedding

4,754,650
US AND METHODS FOR MEASURI
FLOW PARAMETERS
Jack W. Smalling; Leonard D. Braswell, both of Baytown, Tex., and Lawrence C. Lynnworth, Waltham, Mass., assignors to Panametrics, Inc., Waltham, Mass.
Division of Ser. No. 518,444, Jul. 29, 1983, Pat. No. 4,59
This application Apr. 1, 1986, Ser. No. 846,635

11. An apparatus for measuri … onduit having a conduit wall, s

times for acoustic energy transmitted between said tr … ducers,

localized reflection means mounted at said conduit wal … elongating an interrogation path between said trans … ers, and

nest R. Shortrid
Mesa, both of

Ashburnham, b
Company, Sche
Filed

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received surface for receiving

itially receive a

ent power surfaces are moved into engage the rotation of the coupling members and

4,754,653

FORCE MEASURING DEVICE

Hafner, Aichach-Walchshofen, and Gunter Bock, riedberg, both of Fed. Rep. of Germany, assignors to Pfister mbH, Augsburg, Fed. Rep. of Germany

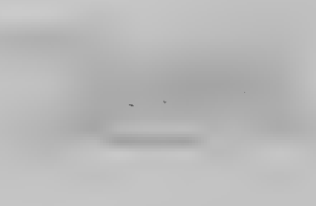
T No. PCT/EP85/00691, § 371 Date Aug. 7, 1986, § 102(e) Date Aug. 7, 1986, PCT Pub. No. WO86/03584, PCT Pub. Date Jun. 19, 1986

ntinuation-in-part of Ser. No. 680,126, Dec. 10, 1984, Pat. No. 44,805. This PCT application Dec. 10, 1985, Ser. No. 907,771

Claims priority, application Fed. Rep. of Germany, Dec. 10, 84, 3444996; United Kingdom, Dec. 10, 1984, 84115029

Int. Cl.⁴ G01I

—862.68 14 Claims



measuring device comprising member luction member spaced from said base member space therebetween, one said member having ylindrical recess and the other said member being nto said recess so as to form a narrow annular gap n an inner peripheral surface of said recessed member ter peripheral surface of said other member, ic material recess and

54,654

Bruce D. Johnson, and Peter J. Wangersky, both of Canada, assignors to Canadian Patents and Dev Limited, Ottawa, Canada

Filed Jan. 8, 1987, Ser. No. 1,432

Claims priority, application Canada, Jan. 9, 1986, 499276

itu water pump sampler comprising a frame member attachment means for attaching said frame member to a hydrographic wire to permit 360° pivoting of said frame member about a longitudinal axis of said hydrographic wire a self contained pump sampler member; a hub-like means adapted to be mounted in said frame means to pivotally attach said pump sampler member to said frame means to permit rotation of said pump sampler member on said frame about a rotation axis normal to the said longitudinal axis of said wire and means responsive to sequential command signals to permit incremental rotation of said pump sampler member frame member about said rotation axis from an initial position, in which said pump sampler member ext generally up-and-down configuration to an interme pling position in which said pump sampler memb generally at right angles to the longitudinal axis of said a final retrieval position in which said pump sampler member extends in a generally up-and-down configuration on said

4,754,655

APPARATUS AND METHOD FOR SAMPLING HAZARDOUS MATERIAL

Frank M. Parker, III, 31535 Nichols Sawmill Rd., and David Lucas, 300 Lazy La., both of Magnolia, Tex. 77355

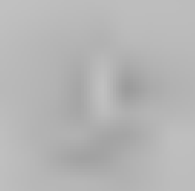
Filed Mar. 16, 1987, Ser. No. 26,059

Int. Cl.⁴ G01N 1/08

U.S. Cl. 73—864.44 29 Claims

1. Apparatus for the extraction and containment of samples of materials suspected of being hazardous comprising

a sampling nozzle having two ends and adapted to be operatively coupled at one end to air vacuum means and the other end adapted to penetrate, extract, and removably contain samples of goods suspected of being hazardous,



nd fumes through the nozzle t

4,754,656

ILK SAMPLING AI METHOD

anley F. Charm, 21 Concolor Ave., Newton, Mass. 0

Filed Apr. 6, 1987, Ser. No. 34,769

Int. Cl.⁴ G01N 1/12

one and an other end

d sample in the container;

d handle break-away means secured by a hand break-away portion at the one end of the handle to the container or to the cap means which cap means is secured to the container so as to permit the use of the handle in obtaining a liquid sample from a liquid source and to provide after so sampling the material destruction and breaking away of th portion of the handle as the one e

4,754,657

DISINTEGRATION TESTING DEVICE

Ortwin Schneider, Weiterstadt, Fed. Rep. of Germany, assignor to Erweka Apparatebau GmbH, Heusenstamm, Fed. Rep. of Germany

PCT No. PCT/EP86/00328, § 371 Date Dec. 11, 1986, § 102 Date Dec. 11, 1986, PCT Pub. No. WO86/07453, PCT P Date Dec. 18, 1986

PCT Filed Jun. 2, 1986, Ser. No. 17,164

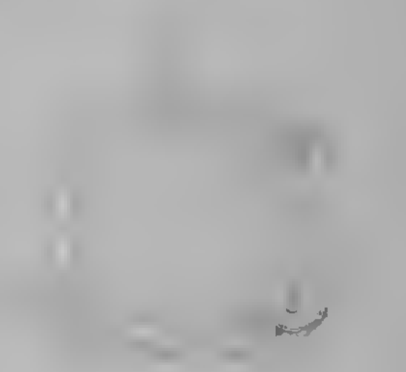
Claims priority, application Fed. Rep. of Germ 985, 3520034

Int. Cl.⁴ G01N 19/00

.S. Cl. 73—86

1. A disintegration testing devi

ture



assembly members being

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g freely rotated relative to

of said motor causes said

embers being located

e, said wheel assembly

vo separate identical pa

TER GEAR FOR

ndu R. Rietsch, Howell, Mich., assignor to
Company, Dearborn, Mich.
Filed Nov. 6, 1986, Ser. No. 927

le to the load, having a first

ection to the load and hav-

ing

or-

gear having a gear wheel

located along its length.

the

nt

es a

tude, and

ecting the second

N GEARING DEVICE FOR AN AUTOMOBILE ACCESSORY MOTOR

Kobayashi, Chigasaki; Yasuo Ohashi, Yokohama, and Hayno Itoh, Fujisawa, all of Japan, assignors to Jidosha Denki Kogyo Kabushiki Kaisha, Japan
Continuation of Ser. No. 604,292, Apr. 19, 1984, abandoned.
This application Aug. 4, 1986, Ser. No. 892,455
Claims priority, application Japan, Apr. 28, 1983, 58-63069
Int. Cl.⁴ F16H *1/16, 1/20*
—427 2 Claims

uction gearing device, for use in a windshield wiper

a second two stage intermediate gear (5) having a center and having first and second stage gear members (5a, 5b) engaged with said second worm (2) and said output gear (6

urth engaging points, respectively,

nd intermediate gears (4, 5) being locat

es of said worm shaft (3),

nd intermediate gears (4, 5) and said out

located and phase controlled so that

centers of the first and se

te gears (4, 5) is an integral multiple of

which is equal to 360° divided by the number of teeth

the output gear (6) and so that the second and fourth engaging points are in the same phase with each other,

aid first and second intermediate gears (4, 5) and said first

l second worms (1, 2) being phase controlled so that the

und third engaging points are in the same phase with

other by means of the arrangement of an off-set angle

d first and second stage gear members (5a, 5b) of said

nd intermediate gear (5) on the

angle in said first and second stage gear memb

of said first intermediate gear (4)

4,754,661

LIMITED SLIP DIFFERENTIAL

David W. L. Barnett, Harwood, England, assignor
Corporation, Cleveland, Ohio
Filed Jun. 9, 1986, Ser. No. 872,066
Claims priority, application United Kingdom, Jun
8515203
Int. Cl.⁴ F16H 1/40

1. A limited slip differential (12) utilizing gear
modified gear tooth profiles comprising
a housing rotatable by a prime mover,
at least one driving pinion (22) mounted to be
able about its own axis in the housing
two parallel driven side gears (24) rotatal
housing by side gear bearings (29–30

differential action selec

id differential gear

zed by

mpris-

ing a first (X) and a second (Y) part defining a discontinuity line (Q) at the intersection thereof, said intersection occurring within the single-tooth meshing contact bound-

P₂) of said modified tooth which boundaries

y correspond with the single tooth meshing

oundaries of corresponding unmodified gear teeth, the two different profile parts (X,Y) extending from the discontinuity line (Q) through the single-tooth contact boundary lines (P_1, P_2) and thence through the double-tooth meshing contact zones (W, Z), said first (X) and second (Y) parts of the modified gear tooth profile defining different pressure angles of mesh (ϕ_1, ϕ_2) to produce differing first and second axial thrust forces on each side gear, whereby

for any speed of dif

forces are different

each tooth meshing ca

the side gear bearings.

he average pressure angle of mesh of the two different profiles (eg ($\phi_1+\phi_2$)/2 corresponding to the pressure

4,754,662

VEHICLE TRANSMISSION WITH REV MECHANISM

Mitsukuni Misawa, Suginami, Japan, assignor to
Kogyo Kabushiki, Japan
Filed Jun. 11, 1986, Ser. No. 872,96
Claims priority, application Japan, Jun. 19, 1985
Int. Cl.⁴ F16H 57/0
S. Cl. 74—42

(c) a pl
shaft

(d) an output shaft mounted on said housing
relation to said input shaft and mounted on
bout an axis thereof
f forward output gears mou

(g) f

inp

thr

(h) a

rev

opera

able in response t

drum into an operat

said interconnecting

LATION STRUCTURE OF ROTAT

oyoshi Yasukawa, Nagano, Japan, assignor
Kaisha Sankyo Seiki Seisakusho, Nagano, Japan
Filed Sep. 10, 1986, Ser. No. 905,42
Claims priority, application Japan, Sep. 10, 198

rticulation structure of the type includ

ns rotatable in a horizontal plane, said

said end of sa

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[illegible] vided between said rotary sha [illegible]

[illegible] lvania, Ohio, assignor to Dana Corporation, [illegible]

[illegible] uding a respective sun gear means [illegible]
mounted on a carrier means, and a [illegible]

[illegible] said first transmission range being [illegible]

[illegible] ge being define [illegible]
[illegible] d said swash plat [illegible]

4,754,665

AUXILIARY TRANSMISSION S [illegible]

[illegible] hn R. Vandervoort, Richland, Mich., assign [illegible]

[illegible] 1986, Ser. No. 826,130

[illegible] F16H 3/02; 3/08

[illegible] an auxiliary section inp [illegible]
[illegible] nd driven by said main t [illegible]
[illegible] extending from said housing, sa [illegible]
[illegible] n characterized by [illegible]
[illegible] splitter/range gear and a ran [illegible]

[illegible] ing, a [illegible]

[illegible] rotationally fixed to sa [illegible]
[illegible] stantly meshed with sa [illegible]
[illegible] tershaft gear rotationally fixed to said auxi [illegible]
[illegible] ft and constantly meshed with said ran [illegible]

a two-position splitter clutch assembly fixed [illegible] with said auxiliary section input shaft and ha [illegible] position for coupling said splitter gear to [illegible] n input shaft and a second positi [illegible] r/range gear to said auxiliary s [illegible]

a two-position range clutch assembly fix [illegible] said output shaft and having a first po [illegible] said splitter/range gear to said output [illegible] pling said range gear to said output sh [illegible]

[illegible] r independently positioning each of [illegible]

[illegible], positions thre [illegible]

4,754,666

POWER TRANSMISSION CONTROL S [illegible]

[illegible] oshiyuki Inagaki, Kariya, Japan, assignor to Ai [illegible] shiki Kaisha, Aichi, Japan

Filed Nov. 8, 1985, Ser. No. 796,254

Claims priority, application Japan, Nov. 15, 1984, 59-242665

a fluid pressure sourc [illegible]

a drain [illegible]

a first fluid pressure [illegible] dr [illegible] pre [illegible] a forward high speed ratio;

a second fluid pressure operated clutch for obtaining [illegible] ond driving speed ratio when said fluid pressure is [illegible] plied thereinto, said second ratio being a forward low speed ratio,

a third fluid pressure operated clutch for obtaining a third driving speed ratio when said fluid pressure is supplied [illegible]

a single selector valve for selecting said first, second and third driving speed ratios and a neutral position disposed between said fluid pressure source and said first, second and third clutches, a first fluid pressure conduit connected between said selector valve and said fluid pressure source, a second fluid pressure conduit connected between said selector valve and said fluid pressure source, said selector valve having a first groove defined between first and second lands and a second groove defined between said second land and a third land, the first conduit selectively connectable to the first groove to obtain one of said reverse speed ratio and said forward low speed ratio, the second conduit selectively connectable to the second groove to obtain said forward high speed ratio, said selector valve prevents fluid communications between said fluid pressure source and said first, second and third clutches and permits the fluid communication between said drain and said first, second and third clutches when said selector valve is positioned to said neutral position, said selector valve operable for selecting one of said first, second and third dirving speed ratios, so as to permit fluid communication between said fluid pressure source and one of said first, second and third clutches corresponding to said one of said first, second and third driving speed ratios and prevent fluid communication between said one of said first, second and third clutches and said drain and prevent fluid communication between said fluid pressure source and remaining ones of said first, second and third clutches and permit fluid communication between said remaining ones of said clutches and said drain; and

detent means f [illegible] lected positi [illegible] pressure in [illegible]

Erich Widmann, Blaubeuren, and Dieter [illegible] both of Fed. Rep. of Germany, assig [illegible]

a first [illegible]

a support for [illegible] drive shaft [illegible] plane of the [illegible] plan [illegible] tion [illegible] plan [illegible]

a first d [illegible] grind [illegible] drive [illegible] able about a [illegible]

means for mou [illegible] pivotable a [illegible] direct [illegible] to th [illegible] the angle made by the gr [illegible] tool,

a second motor unit having [illegible]

a suppor [illegible] secon [illegible] lel t [illegible] moto [illegible] and a [illegible]

[illegible] be rotatable [illegible] drive shaft [illegible]

means f [illegible]

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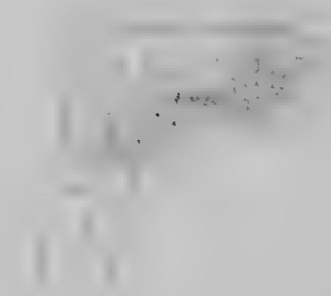
ing means bein
in such a way



tool casing in said first direction, and actuating said man
ual switching means to stop said drive means with the second of said respective opposite directions pre-selected causes said locking means to lock said spindle against rotation relative to said tool casing in the first of said respective opposite directions and to enable rotation
said spindle relative to said tool casing in said secon

ne another when the tools
e members toward one an
on being provided with a tip
th the engaging surface of the embossment
nters the embossment means during tighten-

4,754,669

MOTOR DRIVEN SCREWDRIVER WITH SPIN LOCK

Iean Verdier, Lyon, and Alain Serriere, Dardilly, both France, assignors to Black & Decker Inc., Newark, Del.

Filed Oct. 22, 1986, Ser. No. 922,059

Claims priority, application France, Oct. 24, 1985, 85 15822; lay 2, 1986, 86 06385

Int. Cl.⁴ B25B *21/00*

S. Cl. 81—57.14 21 Claims

torized screwdriver, comprising

pindle rotatably mounted in said
pted to rotate said spindle in respective oppo

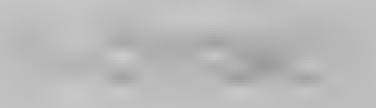
ng means adapted to cause said drive means
her of said

ADJUSTABLE EXTENSION TORQUE BAR

Walter E. Raymond, 4214 N. 27th Dr., Phoenix, Ariz. 8501

Continuation-in-part of Ser. No. 683,809, Dec. 20, 1984, abandoned. This application Apr. 7, 1986, Ser. No. 849,34

Int. Cl.⁴ B25B *13/00*



1. An adjustable extension torque bar, comprising
an elongated sleeve having a longitudinal noncircular ap ture therein, said noncircular aperture exiting at first second ends of said elongated sleeve, a driver memb engaging said first end,
an elongated member having one end slidably engaging said noncircular aperture at said second end of said elongated sleeve, a driver member engaging the other end of said elongated member,
expandable means removably coupled to said one end of elongated member for expanding outwardly to

frusto-conical shaped head sa
n said longitudinal aperture and

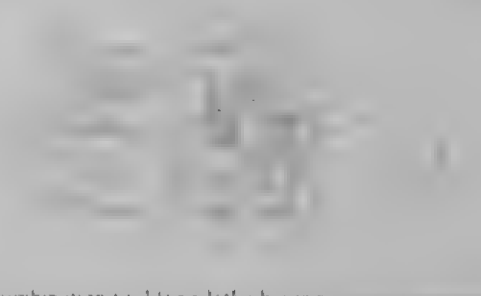
said other end of said elongated
ng with said elongated slot in sa

resilient spacer for adjusting the
member within said sleeve

4,754,671

COMBINATION CUT-OFF TOOL BAR PULLER

eph F. Toffolon, Southingto
Machinery Sales,



A combination tool for a lathe having a
ality of tool stations, said combination

ation tool at an associated tool station, and means fo
ably retaining a cutter insert at the forward end of s
holder body, the cutter insert having a cutting edg
forward end said bar puller having a pair of el
jaw holders having jaws at the forward ends t
mounting said jaw holders in cantilever position and
spaced apart relation to each other on said tool holder
extend in a longitudinally forward direction and with s
in vertically opposing relation to each other at opp
a horizontal plane passing through the cutting
insert retained at the forward end of said tool

SEGMENTED SLIDING BEARING ARRANGEMENT FOR PORTABLE LATHE

Jerald VanderPol, Eldorado Hills, Calif., assignor to Tri Tool nc., Rancho Cordova, Calif.

Filed Apr. 3, 1987, Ser. No. 33,738

Int. Cl.⁴ B23B *5/08*

tool comprising
having a central longitudinal

ving a central longitudi
ngitudinal axis of said fi
member and mounted on one of said opposed ends
rst ring member for rotation relative thereto at

member including a forwar

ents at least

Filed Dec. 16, 1986, Ser. No. 942,538

Claims priority, application Fed. Rep. of Germany, 1985, 3544961

U.S. Cl. 82—

1. A steady

nd a free end.
ountings and

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nnected to said centra
entral holding memb

d to said cer tral
l longitudinal axis
, said adjusting member being
central holding member along

54,674
D DISPENSING DEVICE
fass., assignor to Brandeis Univer-

, 17, 1987, Ser. No. 40,26
l. Cl.⁴ B65H

gle in the direction of movement,
side of the path of movement of

h is parallel to the direction of mov

sheet material is supported by th
he path of movem
l and anvil on
ement, and is substant
f movement of the blad

4,754,675
TISSUE SLICING DEVICE
eph Segal, 4 Bodenheimer Street, Kiryat Has
em 96551, Israel
Filed Dec. 12, 1986, Ser. No. 940,91
ims priority, application Israel, Oct. 8, 1986,
Int. Cl.⁴ G01N 1/06

a slide-removable front wall, a tranversly movable L-shaped side wall, a telescopically adjusted and movable cross bar,
nd atop the said side walls and floor, re
vith a millimetrically regulated appara
nent atop and along the said stationa
floor and side walls of said holder, res
and secure about specimen in said h
specimen onto a fixed slit situated bet
and the said front wall, and a sl
onto the said stationary side w
cally regulated apparatus go
and away from said front wal
and its stationary side wall, re
ble section slit bordered b

4,754,676
OMPUTER PAPER GUIDE EDGE SHEARER
R. Wessels, P.O. Box 204, Huntsville, Ala. 35804-0204
Filed Nov. 24, 1986, Ser. No. 934,257
Int. Cl.⁴ B26D 7/02

S. Cl. 83—452 14 Claims

1. A device for removing the perforated guide edges from omputer papers comprising

plate secured to the top of said first frame for
f said computer paper thereon, said support plate
a first elongated shearing edge on the distal end

rame secured to said first frame, said second frame having an upstanding portion in predetermined spaced relation with said distal end of said support plate to form

sm mounted for vertical movement wit
econd frame, said shearing mechanis

l line of perforations,
tred to said shear plat

DGE CUTTING TOOL
wa Boro, N.J.,
Filed Jun. 8, 1987, Ser. N
Int. Cl.⁴ B26

of the tool.
having blade faces extending

METHOD AND A
FOAM INSULATION
Wayne G. Nichols, Bay City, and Allen B. W
both of Mich., assignors to Kay-Jay Machin
Mich.

end.

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4,754,679

L GENERATION DEVICE FOR ELECTRONIC MUSICAL INSTRUMENT

Suzuki, Hamamatsu, Japan, assignor to Nipp zo Kabushiki Kaisha, Hamamatsu, Japan

tinuation of Ser. No. 705,553, Feb. 26, 1985, abandoned This application Feb. 9, 1987, Ser. No. 13,183

tone to the end there

one color which chang

l periods and a tone color

of time, and

nal on the basis of said basic tone signal and

4,754,680

ALEOUBBING APPARATUS FOR ELECTRONIC MUSICAL INSTRUMENT

eaori Morikawa; Kohtaro Hanzawa, an tkamura, all of Tokyo, Japan, assignors to Casio Computer ., Ltd., Tokyo, Japan

Filed Sep. 2, 1986, Ser. No. 902,530

ims priority, application Japan, Sep. 10, 1985, 60-200259-11, 1985, 60-201301

Int. Cl.⁴ G10H 1/057 1

l to said processing means for

plurality of said processed signals obtained from

cessing means to generate a mixed waveform

aveform memory means through at

aveform read/write channels

CK MADE OF REINFORCED RESIN FOR STRINGED INSTRU

Jean-Pierre Maigret, 20 Villepreux Hameau, and Joseph Cayuela, 43 Villepreux Village, both of F 33160 Saint-Aubin de-Medoc, France

PCT No. PCT/FR82/00224, § 371 Date Aug. 31, 1984, § 102(e) Date Aug. 31, 1984, PCT Pub. No. WO84/02792, PCT Pub. Date Jul. 19, 1984

T Filed Dec. 31, 1982, Ser. No. 653,009

Int. Cl.⁴ G10D 1/02

-282 14 Claims

1 A fiber-reinforced composite bow stick for a stringed musical instrument comprising

an elongate central core of a light-density material and plural resin-impregnated bundles of plural roves of fibers disposed around and surrounding said central core, said

dinally extending from a f

pposite end adapted to

of hairs extending from sa

o said frog-end, said frog-end being adapted to hold a rog for receiving the other end of said set of hairs

---

Jun. 25, 1987, Ser. No. 66,144

Int. Cl.⁴ G10D 7/02

In a clarinet tuning barrel of the type having upper and ver end portions joinable to a mouthpiece and a clarinet dy, respectively, a central portion therebetween, and in l outer walls, the improvemtn comprising a thermally-conductive tubular member having a plurality of grooves in the outer wall, the grooves extending to depths exceeding about half the wall thickness of the tubular member adjacent to the grooves and having widths sufficier

lepths of the grooves

4,754,681

HIGH TENSION DRUMHEAD

vid J. Townsend, Canoga Park, and Robert B. Carson, Van Nuys, both of Calif., assignors to Remo, Inc., North Hollywood, Calif.

ntinuation of Ser. No. 572,569, Jan. 19, 1984, abandoned. Th application Jun. 4, 1986, Ser. No. 873,054

Int. Cl.⁴ G10D 13/02

between the flesh hoop and a top edge of the dru

g means for applying a tensioning force substantially perpendicular to the drumming surface toward the flesh hoop to the counterhoop, said tensioning means being affixed to the drum shell and in contact with the counterhoop; and

n elastomeric O-ring located between the flesh hoop and counter-hoop which applies a lateral force radially inwardly around the drum shell on the segment wherein the lateral force is part of a triangle of forces consisting of the tensioning force, said lateral force and resistance to stretching by the segment of the drumhead

1. A device for cutting a shell may be shortened, said having a casing with a crimped en therein, said device comprising

a shotgun shell on said

said knife in a p

circumference

rimp, and

ent means for en

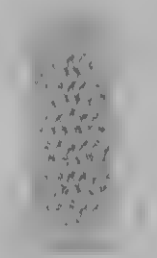
lge to form a circumf

that said star-crim

is shortened ut

ABRASION

Joseph S. Kite, Glen ing, both of to Raychen



resilient mon

ment yarn pr

yarn to two ends of abrasion resista

ends of resilient yarn to one end of

wherein the resilient yarn comprise

having a tensile modulus of at least

resistant yarn compri

modulus at least 50,0

yarn, wherein the a

than the resilient ya

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OR RELEASING
A PROJECTILE FUSE

moy, and Pierre F. Coutin, Paris, both of
R. Alkan & Cie, France
7, 1987, Ser. No. 82,751
ug. 8, 1986, 86 11560

the rifle
le arma
t, while

case of inaction of the
ng which tends to main-

omprising:
rails having a

cting current between
ctile along said rails,
high current to said o launch
g.
age stage connected to said rails
and including,

onduct current supplied

id switch

(E) at least one ele
conduct current
switch means being serially connected in said loop,
(F) said loop being adjacent to and in flux linking relationship with said rails,
(G) said loop being electrica
wer supply such that as

4,754,688

FLICK RAMMER FOR ARTILLERY ROUNDS

Frank Abels, Munster, Fed. Rep. of Germany, assignor to Wegmann & Co. GmbH, Kassel, Fed. Rep. of Germany
Filed Feb. 24, 1987, Ser. No. 17,513
Claims priority, application Fed. Rep. of Germany, Mar. 4 1986, 3607006

In a flick rammer for loading an artillery round into a powder chamber of a barrel, having a loading tray positioned in alignment with the powder chamber at a prescribed d to the rear thereof and receptive of said round, a mec acceleration component for engaging the rear of said round the powder chamber and drive means connected to the mechanical acceleration component, the improvement wherein the drive means comprises a pneumatic cylinder, a compressed-air reservoir receptive of a supply of compressed air, a rapid-opening control valve for connecting the reservoir and the cylinder, a moving component associated with the cy and means connecting the mechanical acceleration com to the moving component of the pneumatic cylinder includ a stroke-transmission mechanism with an input to output transmission ratio greater than 1, wherein the cylinder has a maximum permissible pressure and wherein the compressed-air reservoir has a sufficiently high supply pressure such that when the control valve is open and the same pressure prevails in both the reservoir and the cylinder, the pressure therein will be the maximum permissible cylinder pressure

FOR AUTOMATIC P

lliam H. Grehl, Wallingford, Conn.,
tries Inc., New York, N.Y.
Filed Mar. 30, 1987, Ser. No

—14

p to the barrel for rec
ard recoil and forward
seated in the slide, an

le rod segment having an axis:
ving rear and front enlarged diameter portions joined by a reduced diameter section and a circumferential recess defined between the rear and front enlarged diameter portions such that a rearwardly extend-
semicircular lip with a rear surface perpendicular to
axis of the guide rod segment is defined on the front
larged diameter portion; the front enlarged diameter portion having an upper surface with a central concave area adjoined by two convex side areas; the rear enlarged
meter portion being smaller than the front enlarged
ter portion and having a cylindrical shape;
plate having a front surface, a rear surface, an out
peripheral edge with a shape generally similar to th
the front enlarged diameter portion and a centr
cated opening therein extending between the fr
rear surfaces thereof, the metal plate being receiv
recess such that the reduced diameter section of
segment is received within the centrally located
and the rear surface of the metal plate is flush with
surface of the lip, and the rear enlarged diamete
being a locator and mounted within the smaller
ity, the front enlarged diameter portion and th
egment being mounted in the first ment
avity with an outer peripheral portion of t
gagement with the shoulder
nst a front surface of the

4,754,690

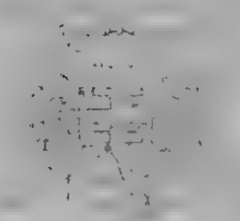
ELECTRICALLY CONTROLLED HYDRAULICALLY DRIVEN ACTUATOR ASSEMBLY

Ronald J. Louis, Phoenix, and Leslie S. Terp, Scottsdale, both of Ariz., assignors to Allied-Signal Inc., Morris Township; Mor-

ed Sep. 19, 1986, Ser. No. 909,381
Int. Cl.⁴ F15B /3
Cl. 91—51

1. An actuator assembly comprising
eans utilizing electric current for producin
lexible value means for controlling fluid

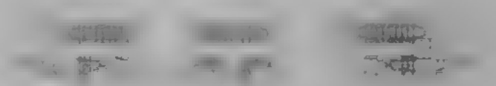
immediately



npeding fluid

mechanical outp
flow of fluid c

FLUID OPI
Victor Rogers
Nuclear Fuels plc,
Filed Sep. 9, 1985, Ser. No. 773,517
Claims priority, application United Kingdom, Se



A fluid operated
der, a piston m
ng a ma
der
cylind
magnet being coope
that the body moves
pressure from the p
obstacle, means for
der, said means for
responsive t
operate the
comprises a f

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4,754,692

) CONTROL SYSTEM

ci Co., Ibaraki, Japan
Filed Feb. 26, 1987, Ser. No. 19,194
ps priority, application Japan, Feb. 28, 1986, 61-44753
Int. Cl.⁴ F15B 13/042
l. 91—390 3 C

ystem which instantaneously detects the ing said load weightless in real time, e freely moved by a slight force

iston connected to an output transmis-

l or an external force and having a first

ly passing disposed to supply a fluid fron generating source to said first chamber, nect said second chamb nder, ubjected to said load h said box for ion of said load, sa on element being provided with a fluid discharg ge communicating with said second chamber c

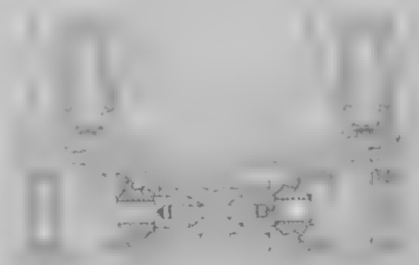
espectively be- d chamber and said second chamber and said fluid discharging ent

ng opposite ends which are arranged to close ond fluid passages in the case of no appli- d or said external force while, in the case id load or said external force, said valve id exter-

---

VALVE

Rainer Teltscher, Waagkirchen, Fed. Rep. of Germany, assig
to Concordia Fluidtechnik GmbH, Stuttgart, Fed. Rep.
Germany
Filed Mar. 30, 1987, Ser. No. 31,786
Claims priority, application Fed. Rep. of C
1986, 3613747



having a central connection for supply of pressure medium, a consuming device connection at each side of said central connection, and a connection at each side of said central pressure supply connection for removal of pressure medium; a control assembly within said valve housing in control relationship with said connections, said control assembly including two control members carried coaxially in opposing relationship in said valve housing and positioned one at each side of said central connection, each of said control members being capable of independent endwise movement between two end positions each of said control members includ sealing surfaces spaced along t ing between the pressure sup connection, each cooperating ing surface of each such pair between each consuming de removal connection, each coo second sealing surface of each such pa further including means for independ said control members between its end posi e consuming device connection either to the e supply connection or to the associated pres-

---

4,754,694

LUID ACTUATOR WITH LOCK POSITIO INDICATING MEANS

J. Martin, Portage, Mich., assignor to Pneu
ration, Boston, Mass.
Filed Mar. 29, 1982, Ser. No. 362,64
Int. Cl.⁴ F01B 15/26; F15B 15/2

1
der c
pressu
piston-rod assembl
including an axially movable lock member movable

member for effecting axial movement thereof to the loc gaging position, said lock release lever having a m movable external extension handle on the outer end th lock-out lever on said actuator housing movable into ment with said extension handle on said lock release l holding said lock release lever in the lock dise and spring means for disengaging said lock-ou extension handle after said piston-rod assem tended a predetermined amount

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4,754,695

PASSENGER COMPARTMEN AUTOMOTIVE VEHICLE

Todd F. Kovacic, Warren, Mich., assignor to
Corporation, Detroit, Mich.
Filed Sep. 2, 1987, Ser. No. 92,
Int. Cl.⁴ B60H 1/24
234

first open position in which a first end thereof is disposed outwardly of said body structure and a second open position in which a second opposite end thereof is disposed outwardly said body structure, and an actuating means operatively c nected with said closure member for effecting movement thereof between its positions, the improvement being that the actuating means includes first and second cam followers operatively connected with said first and second ends of said cl member, respectively, and a rotatable horseshoe shape operatively connected with said first and second cam f

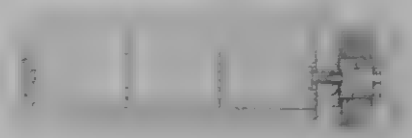
ther end thereof remains closed

compression spr

4,754,697

PORTABLE FAN DEVICE FOR FORCED AIR HEAT

Christophe K. J. Asselbergs, Bragg Creek, Canada, a
Suncourt Holdings Inc., Brag
Filed Dec. 11, 198
laims priority, application Canada
Int. Cl.⁴ F24F 7
l. 98—10¹



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…er, hold the casing skirt clear of … means and allow the device to …

… casing bottom to …

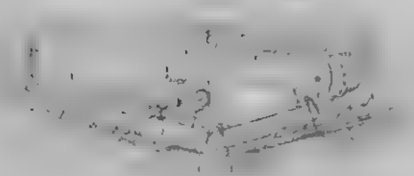
4,754,698
HOME BREWING APPARATUS
… P. Nash, 1440 Rosehill Drive, North West, Calgary, … erta, Canada T2K 1M4
Filed Dec. 1, 1986, Ser. No. 936,…

… means for removable mounting … close the top end thereof, … into said container means nea…

… in said container means above … brewing ingre… … separate from …

… extending into said container means … relationship to said heater means for contr… … of said heater means

4,754,699
ENCHILADA SHELL COOKER
… nge; Michael E. Grady, and Donald G. Warnock … era, Calif., assignors to Valley Grain Products, Inc
Filed Apr. 24, 1987, Ser. No. 42,019
Int. Cl.⁴ A47J …



oil pan, a plurality of produ… endless chain for moving said carriag… to and from said pan, with each of said carriages inclu… food product holder having a tubular section and a c… section for holding a food product therebetween and a support arm having first and second ends, with said drive chain attached at said first end and with said holder attached at said second end,

the improvement wherein said holder includes means for pivoting said clamp section relative to said tubular section

… r preventing pivoting of said holder when said holde… …tions are in said open condition

4,754,700
APPARATUS FOR COOKING VEGETABLES
Ronald A. Bichel, 3141 Highway …
Filed Mar. 3, 198…
Int. Cl.⁴ …

… or cooking diced or …

… a body of water

… r admitting hot water vapor therethrough and disposed … ove and out of contact with said body of water but as close as possible to said body of water.

means for continuously moving said conveyor surface relative to said body of water, said conveyor surface being … ted to have diced or sliced vegtables disposed thereon … erlapping, non-contacting relationship with each …

… ing an aperture therein … sphere whereby said hot wat… …ubstantially at atmospheric pressu…

4,754,701
…ARATING UNIT FOR FLEXO PRINTING MACHINERY
Manfred Batke, Augsburg; Franz X. Gollinger, Hirschbach, and Wolfgang Obermair, Aichach-Unterwittelsbach, all of Fed. Rep. of Germany, assignors to M.A.N. Roland Druckmaschinen Aktiengesellschaft, Offenbach am Main, Fed. Rep. of Germany
Filed Oct. 21, 1986, Ser. No. 921,338
Claims priority, application Fed. Rep. of Germany, … 1985, 3539759
Int. Cl.⁴ B41F 31/04
… l. 101—20…

… n combination with an inker of a … the flexographic printing mode … rein the printing machine has a … 1)

… wards the circumference of the ductor or trou…

… gh portions (5, 6), to permit use of inks of respec… …fferent characteristics, both within the ink trough and on the circumference of the ductor or trough

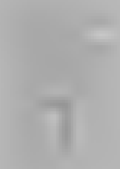
… ler (1); … th a low-friction … ng (8, 17, 18) in the region of said resilient seal … nt which contacts said circumferential portion

…FETY DEVICE FOR REACTING TO A WEB TEAR …ARTICULARLY IN A ROLLER ROTARY OFFSET PRINTING MACHINE
…ard Muller, Leipzig, German Democratic Rep., assignor to … b Kombinat Polygraph "Werner Lamberz" Leipzig, Leip… German Democratic Rep.
Filed Jul. 29, 1987, Ser. No. 79,635
…ims priority, application German Democratic Re… … 86, 296121
Int. Cl.⁴ B…
… l. 101—228

… ict to an occurrence of a … roller offset printing ma… …, the device compri… … a printing mechanism for pre… … er being a driven suction …

roller when th… pressure-volta… adapted to … nals in… the p…

…ND CORDLESS …
…oichi Kurokawa, and Takeo …
… ors to Nippon Oil and Fats …
Filed Feb. 24, 198…
…laims priority, application Japan, Feb. …
Int. Cl.⁴ F42B …
… Cl. 102—202.5



…Date Nov. 21, 1986, PCT Pub. No. …
Date Sep. 25, 1986
PCT Filed Mar. 25, 1986, Ser. No. 9…
Claims priority, application Fed. Rep. of Ger… … 1985, 3510446

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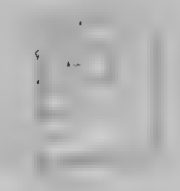
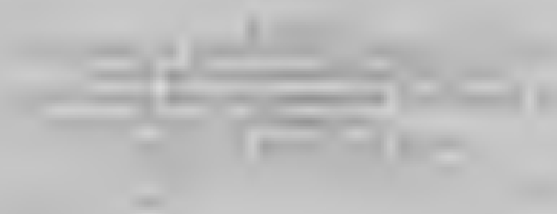




ge member whereby upon detona-
arge the wedge member is adapted
stemming material to wedge the
al laterally against the walls of the bla

4,754,706

IGNITION SCATTERING PROJECTILE

-Robert Fauvel, Muret; Philippe Rousseau, Paris; Pierre
ebault, Saint Agne, and Daniel Van Schendel, Muret, all of
ance, assignors to Etienne Lacroix Tous Artifices, Muret,
rance
ntinuation of Ser. No. 624,832, Jun. 26, 1984, abandoned
This application Jan. 15, 1987, Ser. No. 5,319
laims priority, application France, Jun. 27, 1983, 83 10574
Int. Cl.⁴ F42B 13/56
Cl. 102—489 8 Claims

iner said munit
ing shaped con
itary to enable the adjacent munitions to
lement disposed at one end of the axially

lisposed at the other end of the axiall

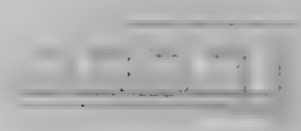
means for fixing the aligned munitions, the ba
I, and the nose
in which the muni
members thereby assisting in retaining the stack und
formable against axial and transverse forces in flight an

ral body of the projectile,
ck being defined by an outer diamete
by the outer surface portions of the aligne
munitions and the diametrically outer extremeties of sai
nose and said base elements to thereby exclude the use
an external casing means
lease means connect
taneously unfixing
r and releasing the
relationship in the structural stack to enable th
scattered over a target area

4,754,707

PROJECTILE

tz U. Ahlers, Schnaittach, Fed. Rep. of Germany, assignor to
Diehl GmbH & Company, Nuremberg, Fed. Rep. of Germany
Filed Sep. 16, 1986, Ser. No. 908,107



tile for use with a firing

axially extending outside

ring mounted on said outside surface, and including a sliding ring circumferentially extending around said outside surface and in sliding frictional contact therewith, said sliding ring being supported by said outside surface along an axially limited region thereof for circumferential sliding movement to impart to the projectile a spin which is less than the spin imparted to the sealing ring by the firing barrel,

(ii) a heat and friction resistant plastic material applied on the sliding ring and secured thereto for circumferential sliding movement with the sliding ring, the plastic material extending radially outward from the sliding ring to engage the firing barrel and to form a gas seal therewith,

lable flanges connected to and radially
id flanges
material

firing of the projectile such that the axial thrust exerted on the plastic material by the inner wall of the firing barrel during firing causes the flanges and angled end members to bend opposite to the direction of firing to cause a slight extension of the terminal free ends of the angled end members to increase the radial compressive force of the plastic material against the inner wall of the firing barrel to counteract any slippage therebetween and to provid more effective propellant gas seal

4,754,708

ROJECTILE DRIVING BAND RETENTION

arold E. Garrett, Santa Ana, Calif., assignor to
space & Communications Corp., Dearborn, Mich.
Filed Nov. 24, 1986, Ser. No. 934,525

an elongated projectile with a circumferential plastic driving band molded onto hook means which are integral with and protruding from said projectile, said hook means being paired so that a pair has two opposing hook means curved toward each other and define therebetween a restraining area for receiving plastic material of said driving band during a molding process, thereby securing the plastic in the restraining area and securing said driving

of opposing hook means with inter-
areas positioned around a first circum-
ference of said projectile, a second plurality of pairs
opposing hook means with intermediate restraining a
positioned around a second circumference of said proj
tile adjacent said first circumference, said pairs in
second plurality being circumferentially displaced f
said pairs in said first plurality so that longitudinally aligned hook means along said projectile in said first and second plurality have opposing directions of curve and the restraining areas of said first plurality of pairs a circumferentially displaced from the restraining areas said second plurality of pairs,

aid hook means being positioned in a circumfere
ing band seating area which is positioned be
circumferential edge restraints, separated from each other along the length of said projectile, said edge restraints acting to secure longitudinally spaced edges of said driving band;

plurality of circumferential driving band seating areas, separated from each other in a longitudinal direction

ity pairs of opposing hook means along
tent of said driving band seating area

aid driving band
inch into said

FOR TH
Harold E. Gramse, Lansing
Myers, Fla., and James
Thrall Car Manu
Filed

well width and limit sideward
in the well when the car rocks,
the guide means comprising at lea
units along each side wall
each guide unit having a movabl
on a horizontal rotatable pin
and m
the wel
reduces the well wid
each unit having a stop
accidental movement

side that whic
when the m

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on of said body section
iding longitudinally the

and second side walls each including first and
l panels operably connected to said first and
ely and at least one intermedi
en said first and second panels

nediate wheel-containing truck means
such that it overlaps at least a portion of
l panel and at least a portion of an intermediate

each end wall by

rior member being fixed to said body section and
means for supporting said interior member in
nterior member to move

able for permitting said
ion to maneuver through horizontal and vertical

ior member having at least a first stop means for
ve motion between said interior
member,
oal or the like from said body

4,754,711

ADAPTABLE FRAME

Ben Solomon, 2029 E. 17th St., Brooklyn, N.Y. 11229

Continuation of Ser. No. 736,746, May 22, 1985, abandoned, which is a continuation-in-part of Ser. No. 682,240, Dec. 17, 1984, Pat. No. 4,669,691. This application Mar. 9, 1987, Ser. No. 22,505

A47F 5/12; B25

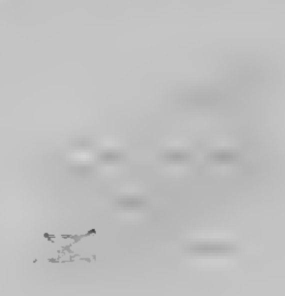


table frame for holding relatively heavy equip-
boards, and paraphernalia, said frame comprising left and right supports, at least one pair of mounting assemblies attached to said supports for holding a crossbar, each of said supports comprising a floor engaging upright that extends in a generally vertical direction, said mounting assemblies comprising clamping devices adjustably attached to said upright, said
mping devices each comprising a clamping member adjust-
ecured to said upright, said clamping member comprising
gated tubular sleeve with full bearing support on one of
prights about the circumference of the upright and over
ntire length of the sleeve and adapted to be fixedly but
ably held in a given position on one of said uprights to
moment forces, said clamping member being one piece
and a stationary jaw member, said beam
sectional area, varying from a greater
diacent said sleeve where moment force
greatest to a minimal cross-sectional area where moment
rce is less, said clamping member also including a movable jaw member mounted for pivotal movement relative to said stationary jaw member and a bolt member, said bolt member being independent of said clamping member and secured to said clamping device and adapted to prevent movement of said movable jaw member relative to said stationary jaw member, one of said jar members forming a cantilevered ledge to support said crossbar, a crossbar held by said clamping device, and mounting brackets attached to said crossbar, each of said brackets having an upwardly bent forward section for holding
uipments, keyboards and paraphernalia, so that by turning
said brackets may be positioned horizontally
uipments, keyboards or paraphernalia

4,754,712

ADJUSTABLE RACK OF SHELVES

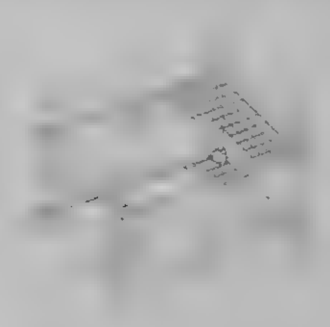
Ralph Olson, Lombard, and Irwin Kulbersh, Skokie, both
assignors to AMCO Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 835,434, Mar. 3, 1986, abandoned, which is a continuation-in-part of Ser. No. 611,493, May 17, 1984, abandoned. This application May 16, 1986, Ser. No. 863,954

Int. Cl.⁴ A47B 9/

U.S. Cl. 108—111 17 Claims

1. A
ally h
hollow
ually spaced recesses, the shelf inclu
ectangular socket members, eacl
cated pyramidal configuration, a ta
least one internal detent, said keeper being adapted to fit over the post and said socket being adapted to fit over the keeper
en the latter is on the post, the detent fitting into a recess
e post members when the keeper is on the post, each sock



hree-sided fence member
U-shape, and means comprising
ty of said sockets formed on said fence member for re
securing said fence to said post members, said fence
comprises an elongated member formed into said re
generally U-shape with said sockets located at corne

MOVABLE PLATFORM WITH ADJUSTABLE LEGS

Catherine M. Chatenay épouse Compagnone, 370 rue Mouffetard, 75005 Paris, France

Filed Aug. 27, 1986, Ser. No. 900,802

laims priority, application France, Sep. 20, 1985, 85

1. An extendable and retractable structure with
plane, adapted to cooperate with a holding surface, co
attachment means connected respectively to said plan
said holding surface, comprising
connecting means constituted by at least two rigid a
onstant length, independent of each other, each being
ticulated by a first end on said plane and cooperating
h said holding surface by its second end by means of a
ating connection, the articulations of the first end
ms on said plane being remote from one anot
wo linerarly extendable and retractable actuat
ident of one another each actuation mea
l respectively with an arm and being, o
articulated on said plane by a first end
d between the periphery of the plane and the artic-
of the first end of said arms, and on the other hand
ted by its second end to the respective arm in the
of said holding surface;
eans connected to the actuation means for pre-
cating said plane, due to the arrangement of the

Filed Sep. 16, 1987, Ser
Int. Cl.⁴ A47B
—15

head, and
each said tail flexing upon further movement of said
to pass over said head, whereupon each said ta

4,754,715

TOGGLE-TYPE SAFE DOOR LOCKING MECHA

William D. Squ
Continuat
abandoned

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ck wall, forwardly extending top, bottom and sidewalls nd a front, including doorway defining frame structure, d frame structure having a pair of upright, laterally spaced, side marginal, elongated tubular frame rails, h of said frame rails comprising,

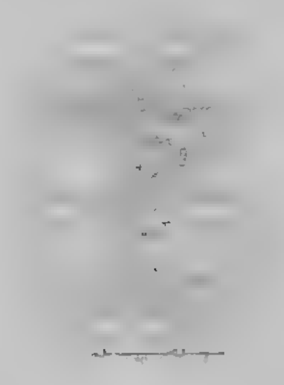
continuous seamless web member being a continuation of the corresponding cabinet sidewall and configured to present an elongated front panel and an elongated, upright recess along the inboard edge of said front panel, and

rearwardly extending inboard wall portion having a series of vertically spaced, locking bolt-receiving apertures therethrough,

r, hingedly secured to said frame structure and shift- een an open position and a closed position, said mprising

g an inner wall and a facially opposed, spaced vall presenting a continuous, circumscrib- ired to be received within said frame rail

r interconnecting said door inner and outer walls, ling a top door rail, a bottom door rail, and a pair upright, laterally spaced, side-marginal, elong pertured door side rails, each of said door rails ng between said walls, with said door side rail ap g vertically spaced and aligned with said frame rail ertures when said door is in said closed position, and



f said door side rails having upright, elongated lly spaced apart inboard and outboard webs, tboard webs having an outer nforcement flange adja al to said door outer wa l to said lip for reinforcing said lip against tamper-

locking said door in said closed position, including ity of vertically spaced toggle mechanisms situated en said door inner and outer walls, each of said les having a pair of pivotally interconnected links the pivotal axis of each mechanism being substan- transverse to said door inner and outer walls, ng bolt operatively coupled with each link adjacent nd thereof remote from said pivotal interconnec- said locking bolts being oriented for back-and- lateral reciprocation through said aligned door rail apertures and being of a length to extend gh the latter and into said frame apertures for

d between said door inner wall ll, having a locking tongue ori-

gle mechanisms bolts from said

frame rail apertures to thereby permit opening of said door, said operating means including

- an upright, elongated operating bar pivotally interconnected with each of said toggle mechanisms adjacent the point of pivotal interconnection of said links,
- a handle on the exterior face of said door outer wall,
- an actuator slotted at one end thereof for raising and lowering said operating bar, said actuator having a notch at the end thereof remote from said slot for engaging said locking tongue when said lock mechanism is in said locked position, said actuator being attached to said operating bar by fastener means extending through and slidable along the length of said slot;
- a shaft extending through said door outer wall and fixedly coupling said handle and said actuator whereby rotation of said handle produces corresponding rotation of said actuator and vertical movement of said operating bar,

said locking means being configured such that when said locking tongue is received by said actuator notch, said operating bar will be in its fully lowered position with the bottommost end thereof engaging said bottom door rail, said locking bolts will extend through said aligned door apertures and into said frame rail inboard wall pertures, and said toggle mechanisms will be r in a downward direction.

4,754,716
REFRACTORY SHIELD REMOVABLE TOE

Stephen J. Coates, Galena, Ill., assignor to Merkle Engineers, Inc., Galena, Ill.

Filed May 15, 1987, Ser. No. 50,625
Int. Cl.⁴ F23M 5/00

34 16 Claims

able refractory shield toe assembly for a suspended refractory shield comprising, a hanger suspension means extending substantially the length of said toe assembly a plurality of adjacent refractories suspended by at least one metallic refractory hanger, each said refractory hanger engaged in said hanger suspension means, a refractory sup means extending downwardly from said hanger susp means outer end and positioned to hold the oute ity of refractories in desired position with hanger suspension means, a toe assembly sus extending upwardly from said hanger suspension means hav lifting means positioned in an outer upward location outwa from a vertical axis through the center of gravity of said movable toe assembly and having hanging means positioned an inner upward location inwardly from said vertical axis whereby said removable toe assembly rotates outwardly ing the inner face of the innermost of said plurality of ref ries from the outer face of the outermost fixed refract

against said outer face when the weight assembly is upon said hanging means

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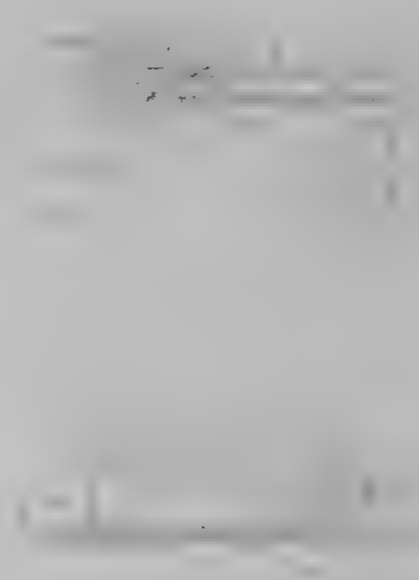
4,754,717
SEWING ARRANGEMENT FOR COVERS MADE OF TEXTILE MATERIAL, E.G. PILLOW CASES, SLIP COVERS OR THE LIKE

Siegfried Henze, Hohenroth, and Martin Schnaus, Grosselbstadt, both of Fed. Rep. of Germany, assignors to Texpa-Arbter Maschinenbau GmbH, Saal/Saale, Fed. Rep. of Germany

Filed Jul. 31, 1987, Ser. No. 80,506
Int. Cl.⁴ D05B *13/00, 21/00*

14 Claims



r covers of fabric m w cases, bed sheets or the like, where sections cut from a pply of fabric are made into individual covers, characterized

(a) a first transporting device (17) which moves the sections of fabric (24) to a folding station (28) where a folding bar 29), being movable back and forth in a direction crosswise to the direction of movement of the first transport device (17), folds each section of fabric (24) across an alignment plate (32) such that one layer (31) of each section of fabric (24) is above the alignment plate (32) and the other (33) below the alignment plate (32),

(b) a device, disposed above the alignment plate (32) and controllable in respect to the offset of the two layers (31 33), for the edge-aligned positioning of the upper layer ed on top of the alignment plate (32) in respect r layer (33) of each section of material (24)

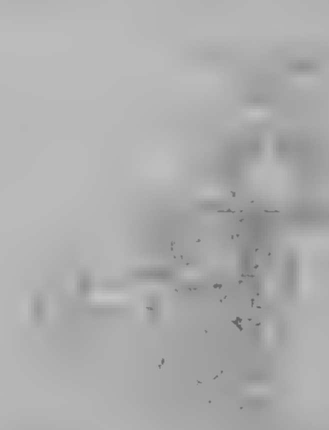
l transporting device (60) for taking up and further transporting the folded and aligned sections of fabric (24) to a first sewing station (61) where the folded layers 31, 33) of the sections of fabric (24) are sewn together along two aligned edges (52, 52'), and

(d) a third transporting device (65), disposed at right angles to the second transporting device (60) for taking up and further transporting the sections of fabric (24) to a second 67) where the folded layers (31, 33) of the abric (24) are se d edges (68, 68

4,754,718
DOUBLE NEEDLE BAR TUFTING APPAR THE FORMATION OF LOOP PILE AND CUT PI

Charles W. Watkins, Ooltewah, Tenn., assignor to Tuftco Cor ration, Chattanooga, Tenn.

Filed Jun. 16, 1987, Ser. No. 62,9
Int. Cl.⁴ D05C 15/2



said

base fabric,

(e) looper apparatus comprising a hooks and a plurality of cut pile bo hook for each of said needles,

(f) said looper apparatus comprising cut pile hooks adjacent said fabric that hooks cooperates loop,

(g) knife means for re corresponding cut pile hook to forn

(h) said looper apparatus further com in said feeding dire hooks point in said fe direction from the bills of said cut p loop pile hooks cooperating with a loop pile loop,

(i) said

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MEANS OF ATTACHING APPLIQUES

[illegible] E. Takken, Hudsonville, Mich., assignor to H. H. Cutler [illegible]ompany, Grand Rapids, Mich.

Filed Aug. 18, 1986, Ser. No. 897,304

Int. Cl.⁴ D05C 7/08; D05B 21/00

[illegible] Claims

[illegible] from the vacuum [illegible]

4,754,720

PROCESS AND DEVICE FOR FABRICATING SEAT COVERS

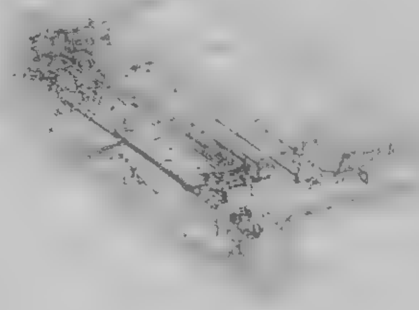
Herbert Dietrich, Kaiserslautern, and Kurt Petry, Stelzenberg, both of Fed. Rep. of Germany, assignors to Pfaff Indus- [illegible]

[illegible], 3641345

[illegible] Cl. 112—262

[illegible] folding over a marginal edge of [illegible] folded edge, introducing the folded material into the first of the plurality of rec[illegible] plastic panel and arranging the cover materi[illegible] the width of the cell, joining the cover mat[illegible] plastic panel along the edge of the fold by a seam runn[illegible] parallel with the edge, covering the next row of cells with the cover material by folding the cover material again to form next fold edge, introducing the next fold edg[illegible] of the plurality of recesses sewing this next [illegible] edge of the fold by a seam running parallel w[illegible] repeating the process to cover each cell in succession

6. A process of forming a seat cover of a foam plastic pane[illegible] having a plurality of rows of transversely and longitudinally spaced raised cells and recesses and a cover, and using a support base plate and means for orienting the foam plastic panel in a precise position on the base plate and also using a traveler plate on which the cover is carried, comprising applying the cover onto the traveler plate so that a marginal cover edge [illegible] folded over the edge of the traveler plate, orienting the p[illegible] panel so that the [illegible] portions are at a pr[illegible] traveler plate so that the marg[illegible]



[illegible] to the first row of recesses, se[illegible] material to the panel forming a securing se[illegible] to the panel along the first r[illegible] of cover material by sliding [illegible] toward the securing seam, and moving the traveler plate along the cover material and directing the cover material into the next row of recesses

8. An apparatus for forming seat covers of a foam pl[illegible] pane[illegible] nally [illegible] support base plate upon w[illegible] placed, a movable traveler [illegible]

[illegible] e next adjacent recess

4,754,721

ARRANGEMENT OF A HAND WHE[illegible] MACHINE

Kenneth O. E. Skogward, Huskvarna, Sweden, assi[illegible] varna Aktiebolag, Sweden

Filed Mar. 5, 1987, Ser. No. 22,130

Claims priority, application Sweden, Mar. 11, 1986, 8601131

Int. Cl.⁴ D05B 69/28

[illegible] ably [illegible] ntrol [illegible]

[illegible] comprising

a first angle of rotation meter comprising a first generator for supplying pulses corresponding to predetermined angles of rotation of a shaft in the machine, and a first coun[illegible] connected to the generator for counting the pulses,

a second angle of rotation meter on said rotatably journalled hand wheel comprising a second generator for supplying pulses corresponding to predetermined angles of rotation of said hand wheel and a second counter for counting said last mentioned pulses, and

a comparator for comparing the counts of pulses of the first and second counters, and means resp[illegible] between the counts of said first and [illegible] applying signals to said motor contr[illegible] difference has [illegible]

4,754,722

THREAD BREAK DETECTOR FOR A SEWING MACHINE

Gunter Rohr, Hemmingen, and Wolfgang Norz, Schwieberdigen, both of Fed. Rep. of Germany, assignors to Union Special G.m.b.H., Stuttgart, Fed. Rep. of Germany

Filed Jun. 22, 1987, Ser. No. 65,221

Claims priority, application Fed. Rep. of Germ[illegible]

[illegible] such that it moves in synchronism with the [illegible], and the deflection of the sewing thread com[illegible]

APPARATUS FOR [illegible]

Jan Ghering, Gustavsburg, [illegible] Man Gutehoffnungshu[illegible] Germany

Filed Nov. 14 [illegible]

Claims priority, applica[illegible]

U.S. Cl. 11[illegible]

[illegible] can be fold[illegible] said pontoons [illegible] of said inner [illegible] hinge [illegible] respe[illegible] of said [illegible] each of the la[illegible] each of two [illegible] inner and o[illegible] pivota[illegible] includ[illegible] one of said [illegible] posed in the [illegible] region of the [illegible]

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tion member interposed betw l tension spring and said conne l pontoon unit when fully unfolded having n member extended in preparation for fold and due to provision of said variable-length nnection member with said tension spring, it is possible, shortening said connection member in a folded state to ilitate unfolding with the assistance of said tension n member is ned during ter pontoon fully for the folding operation so that need equipment and excessive physical effort is

4,754,724

ECK CONSTRUCTION OF A SMALL BOAT

omu Murakami, Yokohama, and Hiroshi Nishida, Miki, both of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed May 20, 1986, Ser. No. 865,106

Claims priority, application Japan, May 20, 1985

substantially between said pair of fins, and g means, affixed to said deck, for adjusting the position of said seat to an elevated position whereby said operator may sit upon said seat and operate said handle while seated and to a retracted position where said seat is id deck whereby said operator may operate ft in said kneeling and standing positions

PERCRITICAL SLIDING PRESSURE OPERATION BOILER WITH REAR GAS DUCT

sao Haneda; Mamoru Araoka; Toshihiro Kamata, and Tetsuo ada, all of Tokyo, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

ntinuation of Ser. No. 822,586, Jan. 15, 1986, abandoned. Th application Apr. 13, 1987, Ser. No. 37,053

Claims priority, application Japan, Feb. 20, 1985, 60-32494

Int. Cl.⁴ F22G 7/14

122—476

der compressed

said side walls and spaced from g a first passage means of said ent s tion w eas du side walls, rear wall and partition wa passage means having a width as meas walls narrower than the width of said second passage means as measured along said side walls, a low pressure reheater disposed in said first passage means, said second

and at least on superheater and one high-pressure reheater disposed in said second passage means, said first, second and third passages of said second passage means each having a respective one of said superheater and said high pressure reheater disposed therein; and duct evaporator in each of said fi rst passage, said second passag

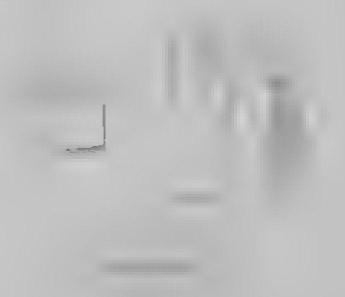
EMISSION CONTROL APPARATUS

or L. Eller, "Lake View", R.M.B. 2007, Pomonal R Stawell, Victoria, Australia

Filed Jun. 30, 1986, Ser. No. 880,248

Claims priority, application Australia, Dec. 21, 198

Int. Cl.⁴ F02M 25/02

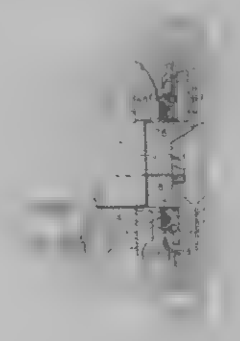


nifold means on the battery to receive the battery cells, conduit means con

DEVICE FOR VARYING ENGINE VALVE TIMING

Keith Hampton, Ann Arbor, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 939,587, Dec. 9, 1986. This application Jul. 13, 1987, Ser. No. 73,598



e engine camshaft;

a drive member rotatably mounted on said hub member, and means connecting said drive member in driving relationship with the engine crankshaft

an advancing member;

a first means interconnecting said advanc said hub member affecting limited axial m advancing member relative to said hub mem

a second means interconnecting said advancing memb with said drive member which upon axial movement of said advancing member causes limited rotation of said drive member relative to said hub member,

an annular means mounted on said hub member, said advancing member mounted on said annular means,

coacting meshing m means for moving to said hub upon i relative to the hub, and

a non-rotational retarder means which when actuated applies a retarding torque to said annular means causing limited rotation of said annular means relati and thus cause the advancing member to m the hub whereby the drive member is m angular distance relative to the hub

4,754,728

FOUR-VALVE CYLINDER HEAD OF DESMODROMIC OPERATION, FOR INTERNAL COMBUSTION ENGINES

Massimo Bordi, San Lazzaro di Savena, and Gianluigi Mengoli, Bagnarola, both of Italy, assignors to Ducati Meccanica S.p.A., Bologna, Italy

Filed May 19, 1987, Ser. No. 52,558

Claims priority, application Italy, Jun. 5, 1986, 20685 A/86

Int. Cl.⁴ F01L 1/30

4,754,729

PPORT ASSEM

shida, and Akira Fujiwara, all of Saitan Honda Giken Kogyo Kabushiki Kaish

Claims priorit Oct. 21, 1985,

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ns for rigidly securing said fra
for structurally interconnecting s
l for fixing their position with r

4,754,730

VEHICLE STARTING SYSTEM

e Campagna, 19 Sherbrooke Street, Magog, Canada

Filed Dec. 4, 1986, Ser. No. 936,559

4,754,731

PISTON OF LIGHT METAL

hard Bonm, Stein, and Helmut Zweck, Nuremberg, both of Germany, assignors to Alcan Aluminiumwe GmbH

Filed Jul. 28, 1986, Ser. No. 891,203

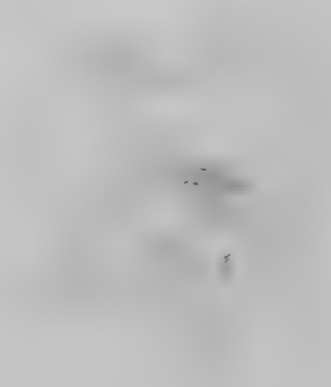
iority, application Fed. Rep. of Germa

4

even R. Kuczenski, and Robert H. DeBoth, both of New Holstein, Wis., assignors to Tecumseh Products Company, Tecumseh, Mich.

Filed Feb. 12, 1987, Se

Int. Cl.⁴ F01M



at a reference pressure,
g a circuit mo
etween a first

h means having actuator means
means, said actuator means being

diaphragm operator operable to engage and mo
tuator and switch means to one of said first and positions in response to a pressur
said first chamber and said second c
termined level, said spring means l
l switch means in the said one position

4,754,733

INJECTION DEVICE FOR RECIPROCATING INTERNAL COMBUSTION ENGINE

Anton Steiger, Illnau, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Feb. 4, 1987, Ser. No. 11,201

Claims priority, application Switzerland, Feb. 12, 1986, 562/86

Int. Cl.⁴ F02M 47/0

ection device for a combustion chamber of a
nternal combustion engine, said device inclu

timed injection valve having at least one aperture for injection of diesel oil as an ignition fuel into the combustion chamber and additional apertures for injection of diesel oil as a main fuel into the combustion chamber and a valve needle closing over said apertures under the pressure of diesel oil delivered to said valve; and

control means for selectively opening only said one aperture cyclically when the combustion chamber is operated with gas as a main fuel and opening said one aperture and said additional apertures cyclically when the combustion chamber is operated with diesel oil as a main fuel, said control means being connected to said valve to relieve the pressure of the diesel oil delivered to said valve to control movement of said valve needle relative to said one aper

4,754,734

INJECTION QUANTITY INCREASING MECHANISM

Masayoshi Ohkoshi, Saitama, Japan, assignor to Dies
Co., Ltd., Tokyo, Japan

Filed Sep. 4, 1986, Ser. No. 904,002

Claims priority, application Japan, Sep. 10, 19

Int. Cl.⁴ F02D 1/04

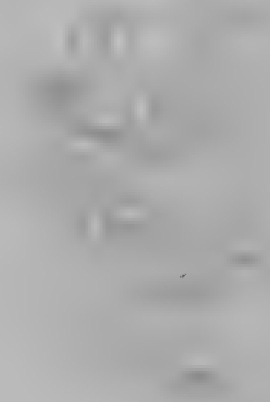
U.S. Cl. 123—300

n increasing mechanism
f an engine for increas

pivoting with the
a floating lever hav
the floating lever

vith in said directions, and a bolt

a displac
by the engine,
a first supporting lever pivotally m
lever between the first and second
a second supporting l



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ECTION APPARATUS I INTERNAL COMBUSTION ENGINES

ter W. Simons, 2 Bolton Street, E. Fremantle, West Australia

ontinuation of Ser. No. 894,459, Aug. 5, 1986, abandoned which is a continuation of Ser. No. 751,455, Jul. 2, 1985 andoned, which is a continuation of Ser. No. 626,718, Jul. 2, 984, abandoned, which is a continuation-in-part of Ser. No. 656, Dec. 30, 1982, abandoned. This application Jul. 6, 1987

Ser. No. 70,119

stralia, Dec. 31

4,754,736

NTROLLING THE FUEL SU MBUSTION ENGINES CELERATION

hiro Yamato, and Fumio Yatabe, both of Utsunom assignors to Honda Giken Kogyo K.K., Tokyo, Jap

ontinuation of Ser. No. 843,986, Mar. 25, 1986, aban

This application Jul. 24, 1987, Ser. No. 77,075

aims priority, application Japan, Mar. 27, 1985, 60-62539

Int. Cl.⁴ F02D 5/02

fuel supply to

ating fuel incre ter value detecte redetermined value

Akio Ishida, Kanagawa; Hiroshi Oikawa, Tokyo; Kazuo Itoh Saitama, and Kimio Uehara, Tokyo, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP85/00153, § 371 Date Jan. 8, 1985, § 102(e) Date Jan. 8, 1985, PCT Pub. No. WO85/05152, PCT Pub Date Nov. 21, 1985

PCT Filed Mar. 29, 1985, Ser. No. 823,482

Claims priority, application Japan, May 8, 1984, 59-66995[U May 14, 1984, 59-96240; Oct. 1, 1984, 59-148821[U]; Oct. 1 1984, 59-148824[U]; Oct. 4, 1984, 59-20856 61-60225

Int. Cl.⁴ F02M 59/

en by an engine; a fuel chamber provided so ie plunger in the housing; an oil passage rmed in the plunger so that its one end communicates to the pressurizing chamber and the other end communicates to the fuel chamber; a control sleeve slidably mounted on the outer periphery of the plunger in the fuel chamber; a control groove provided on the outer peripheral surface of the plunger for communicating the pressurizing chamber and fuel chamber to each other by way of the oil passages or for interrupting the same, said control groove having at least longitudinally directed edges and inclined edges provided with relation to the axis of the plunger; control ports provided on the control sleeve and communicating the control groove to the fuel chamber when a fuel injection is completed; an injection quantity control member supported on the housing for controlling a fuel injection quantity; an injection timing control member for moving the control sleeve in the axial direction of the plunger; fuel injection control means for controlling the injection quantity control member and the injection timing control member in accordance with signals from operating state information sources, the fuel injection control means is composed so as to advance the injection timing control member on the basis of the information of the engine in a high speed region he operating state information sources; the control is provided on the plunger and the control ports on the l sleeve, respectively, and the length between the upper nd of the control sleeve and the control ports is set so as to be qual to or shorter than the length between the upper end of e longitudinally directed edges and the control ports when nger is under the state of the minimum effective stroke of the operation of the injection quantity control and at the position where it has risen to the top two-stage blasting of fuel is prevented

4,754,738

PRESSURE OIL FEED ARRANGEMENT FOR A HYDRAULICALLY ACTUATED TIMING DEVICE COOPERATING WITH AN INJECTION PUMP

Michael Grohn, Waiblingen; Frank Thoma, Stuttgart, and Wilhelm Tonhaeuser, Korb, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Aug. 18, 1986, Ser. No. 897,343

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1985, 3529426; Dec. 6, 1985, 3543151

1. A pressure oil feed arrangement for a hydraulically actuated injection timing device, cooperating with a fuel injection

ed to said injection ting, in a shifting

from a ling sa tion, from a shifting position for advancing the begin of said injection, for duration starting from said second pulse and extending beyond said injection cycle, a function of at least one of rotational speed thereby interrupting advancement adjustm injection cycles and assuring advancement being possible only between injection cycles

APPARATUS FOR DE COMBUSTION ENGIN

Peter W. Czwienczek, Padbury; Christopher N. F dale; Darren A. Smith, Scarborough; Michael Willetton, and Robin M. Briggs, Marmion, all o assignors to Orbital Engine Company Proprieta Balcatta, Australia

Filed May 23, 1986, Ser. No. 866,425

Claims priority, application Australia, May 24, 1

Int. Cl.⁴ F02M 67/0

U.S. Cl. 123—53

que chamber, linearly

enthal; Detlef Pi Wolfgang, Braunschweig many, assignors to Volkswagenwerk Aktiengesells Wolfsburg, Fed. Rep. of Germany

Continuation of Ser. No. 738,773, May 29, 1985, abando

This application Oct. 27, 1987, Ser. No. 115,65

Claims priority, application Fed. Rep. of Germa 1984, 3420129

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engine and
l pump and only the
is means fo
air stream port

valve means disposed in said another fuel passage and operated by said sensor via an operative connection that passe through a throughhole in a wall that separates said one fuel passage from said another fuel passage for directing fuel entering said return port selectively to said tank port and to said one fuel passage by favoring flow to said one fuel passage over one range of temperature sensed by said sensor and by favoring flow to said tank port over anoth ge of temperature sensed by said sensor,

pressure regulator means disposed on said b eration with said another fuel passa liquid fuel pressure

4,754,742
PRE-HEATER FOR AI
2513 Oakwood Dr., P.O. Box 531
051
Aug. 30, 1985, Ser. No. 770,88

1. A pre-heater for air comprising a housing having an e ated air inlet section and an air outlet section, heating m

tubes to energize the same the cause the heated air to be furth

a MIXI
tic
tion Lau C. Bong
d liquid fuel Kong, Hong Kong, assignors to Elec & Eltek
sources Technology Limited, British Virgin Isls.
ceive liquid Filed Feb. 20, 1986, Ser. No. 831,939
ion Claims priority, application United Kingd
the 85/4922
he Int. Cl.⁴ F02M 23/06 3/

having a housing defi

and the tip extending into an opening in the duct wall downstream of the throttle valve of cross-section less than that of the dy, the gap between the conical wall of the tip and the of the opening defining a path for fuel to the duct, rmed with a passageway therethrough terminating in n opening in the surface of the elongate body and in said hamber, the passageway being coupled via an air valve to a source of air, and the air valve being operable in response to signals from a speed sensor for monitoring the speed of a said ngine to open whenever said sensed engine speed exceeds a redetermined value, regardless of throttle position, and close d sensed speed falls below said predetermi

flow corredetermined
cting said adction which opposes the flow of fuel to the unt which increases with said higher rates of low, wherein the idling jet is configured to form an air curtain around the idling jet at first high rates of air flow for hibiting fuel from being delivered by the idling jet, said rburator further including a slow running jet for admitting e duct between the main jet and the idling jet, where jet is configured to form said air curtain around both high rates of for inhibi-

4,754,744
SUPPLY SYSTEM FOR GAS BURNER
ders E. Borg, Tyresö, Sweden, assignor to Aktiebolaget I
trolux, Sweden
Filed Mar. 12, 1987, Ser. No. 24,990
Claims priority, application Sweden, Mar. 27, 1986 8601433
Int. Cl.⁴ F24C 3/00
S. Cl. 126—39 N 7 Claims

burners of the ty
n conduit and a
ing gas to each

ondants therein, and ea

4,754,745
CON ET MATER
HYTHERAPY
Bruce S. H Yorkridge, Farm
48018
Continuation of Ser. No. 673,858, Nov. 21, 1984, al
This application Jul. 7, 1986, Ser. No. 882

1. A delivery system for brachytherapy

seed being n
encapsulated

SELF-RETAINING METATARSAL SER
nneth L. Cox, 1653 Medical Dental Bldg., Sea
Filed Sep. 25, 1986, Se
Int. Cl.⁴ A61b

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ading bottom corner p

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...MENT OF COUGH IN INFA...
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...tralia

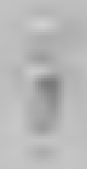
symptoms

4,754,748
...PARATUS FOR GENERATING PNEUMATIC ...SSURE PULSES FOR APPLICATION TO THE ...TERNAL ACOUSTIC MEATUS OF A PATIENT
...ntowski, SAngvägen 54, S-175 36 Järfälla, Sweden
PCT/SE85/00323, § 371 Date Apr. 16, 1986, § 102(e) ... 1986, PCT Pub. No. WO86/01399, PCT Pub ... 1986

...s (9) for controlling the speed of the two ...2) and the settings of the two valves (5,6...

...am controlling the shape, frequency and amplitude ...r pressure pulses produced in the output line (7)

4,754,749
SCREW WITH COUNTER-R... PREVENTION MEANS
...Tsou, 526 Adelaide Dr., Santa Monica, Calif. 90402
Filed Apr. 29, 1986, Ser. No. 856,988
...04, F16B 39/00



...hort, cylindrical h... ...nk portion, and a heli...cally threaded distal end portion; the short, cylindrical head protion having a substantially flat under surface and a partially rounded top surface,

b) a hexagonal, countersunk socket extending part way into the center of the short, cylindrical head portion from the...

head protion, said inclined hole extending ... tom of said transverse slot to the flat under s... short, cylindrical head portion, the axis of said inclined hole being inclined with respect to the longitudinal axis said screw by an acute angle, and

curved loop proximal end portion of said elonga... means being retained in said transverse slot and over sa... ...nal countersunk socket to restrict rotational move... said elongated pin means about its longitudinal axis and to prohibit entry of a removal tool into said transverse slot and said hexagonal countersunk so... long as said elongated pin means remains in its in... position, a portion of the curved loop end of said elongated pin means protruding above the rounded top surface of the bead of said screw to enable a removal tool to physically engage the curved loop end ... ...ngated pin means, thereby ... be removed from the pa... ...r separation has been bealed

4,754,750
AREOLA/NIPPLE SURGICAL WOUND PROTECTOR
Maurice M. Imonti, Dana Point, Calif., assignor to CooperVision, Inc., Palo Alto, Calif.
Filed Mar. 20, 1987, Ser. No. 28,67...
Int. Cl.⁴ A61F 13/00, 15/00; A61L ...
U.S. Cl. 128—155 13 Claims

...terile pad having an upper ... centrally-located opening ... upper and lower surfaces,

a cone-shaped nipple protector formed of tissue-compatible transparent plastic, and having a base portion and a top portion,

said nipple protector member having at said base portion a radially-disposed flange with an upper annular flange surface,

a securing means for securing said base portion to said sterile pad upper surface and over said centrally-located opening, and for securing said sterile pad to the patient's breast so that the patient's nipple passes up through said opening and into said nipple protector member,

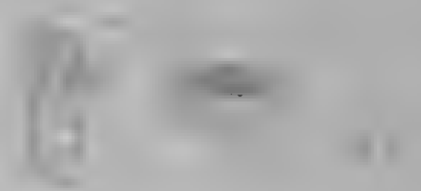
said securing means directly securing said flange to said upper surface of said pad,

said securing means including a continuous tape member engaging said upper annular flange surface and a plurality of tape strips radially disposed out from said pad, and

...d top portion defining at least one air hole passing there... for aerating the patient's nipple positioned in said ...ector member

4,754,751
ESCAPE RESPIRATOR
John W. Mausteller, Evans City; Daniel L. Thiebaud, Zelienople, and Miles J. McGoff, Wexford, all of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Jun. 11, 1987, Ser. No. 62,09...
Int. Cl.⁴ A62B 19/00

...ece into the pa...



...VASCULAR CATHETER
Robert Ginsburg, 2489 Alpine Rd., Menlo Park ... and David F. Profitt, 1154 Madison, Santa Clara, Calif. 95051
Continuation-in-part of Ser. No. 891,432, Jul. 28, 1986, abandoned. This application Jul. 27, 1987, Ser. No. 79,07...

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262,863, May 12, 1981, abandoned
r. 12, 1985, Ser. No. 797,359

means electrically coupled to

means coupled to said first, second

led to said
mining the
second sensin
al signal indica

4,754,754

IANDPIECE F
NEEDLES

Jon C. Garito, 264 Hedge Ln., Hewlett Harbor, N.Y. 11577
Alan G. Ellman, 1 Auerbach Ln., Lawrence, N.Y. 11516
Continuation of Ser. No. 642,521, Aug. 20, 1984, abandon
This application Oct. 28, 1986, Ser. No. 925,530
Int. Cl.⁴ A61B 17/39

s for locking said standa
made in said receiving means
wherein said re
parallel oppo

equal to at least the height of
pre-sterilized microsharp scal

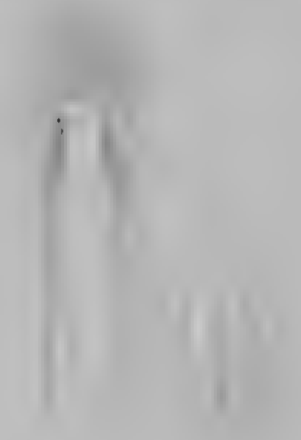
4,754,755

CATHETER WITH A ROTARY BEAD

Royce H. Husted, 711 Lakeside Dr., Wheaton, Ill. 60
Continuation of Ser. No. 874,545, Jun. 16, 1986, abandoned, which is a continuation-in-part of Ser. No. 609,846, May 14, 1984, abandoned. This application Jul. 27, 1987, Ser. No. 77,981
Int. Cl.⁴ A61B 17/32

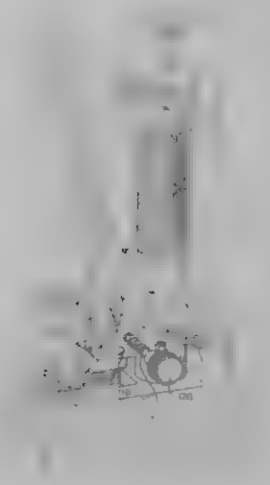
U.S. Cl. 128—305 5 Cla

1. A catheter for clearing arterial obstructions compris



DERMATOME

Skelanski, 431 Wister Rd., Wynnewo
Filed Dec. 12, 1986, Ser. No. 941,1



prising a crosshead
y to reciprocate a skin cutting
ead being movable between an

Filed Nov. 10, 1986, Ser. N

985, 3544443

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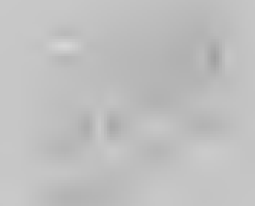
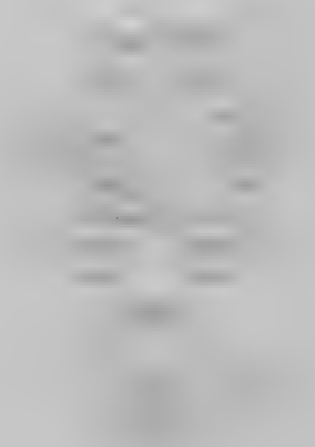


nd the second member com

r. No. 752,353

E TEMPERATURE
MINATION METHOD AND APPARATUS
Fukukita, Tokyo, and Shinichirou Ueno, Machida, both
pan, assignors to Agency of Industrial Science & Tech-
y and Ministry of International Trade & Industry, both
okyo, Japan
Filed Mar. 30, 1987, Ser. No
ms priority, application Japan, Nov
Int. Cl.⁴ A61B



A method for determining temperature of
ch utilizes ultrasonic pulses, comprising the st
e pulse having
erposing the p
lower than the
e where a particle velocity of
nity of zero in addition to whic
celeration of which is at a constant portion
g a second pulse by superposing the
r frequency on a peak particle velocity p

l first and second and probe pu
eiving the reflections of the

subjecting the

MEAN ARTERIAL BLOOD PRESSURE
OR WITH DATA ENHANCEMENT
nard Ramsey, III, Tampa; Richard Medero, Lutz, and Rush
W. Hood, Jr., Tampa, all of Fla., assignors to Critikon, Inc.,
Tampa, Fla.
ontinuation of Se
applicat

(a) an inflatable cuff
(b) means for inflating and deflating said cuff
(c) pressure transducer means coupled to said cuff for signalling the pressure existing in said cuff,
(d) means responsive to the pressure signalled by said transducer for generating a signal representing blood pressure oscillation complexes sensed by said cuff and said t
ducer coupled thereto,
(e) complex peak storing means for storing values chara
izing the peak amplitudes of said detected oscill
complexes at different cuff pressures,
e storing means for storing the cuff pressures
n said complex peak amplitudes arose, and
al pressure determining means, said mea

which were generated at cuff pressures
n that existing when said maximum comple

ans for detern

ral ones of the com

pressures stored in said cuff pressure storing
orresponding to said selected plural ones and

ASIVE SYSTE
THE INTEGRIT
Harvey H. Doemla
Technology, Inc

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bration induced in said

y energy at said resonant fre-
ignitude of energy at other fre
d mechanical vibration,
indicium variably responsive to
and a second visual indicium
to said energy

ntegrity of

4,754,76

AL CYTOLOGY DEVICE

ne, Littleton, Colo., assignor to Medical Dynam-
glewood, Colo.
led Mar. 20, 1987, Ser. No. 28,1

iving a first h
g said device,
rmediate cell collecting means including a disc which is
idly attached to an end of said hollow shaft, said hollow haft projecting outwardly at a right angle from one side isc, the other side of said disc being provided with ly planar cell collecting surface for scraping gy cell samples from the exocervix; and
al cell collecting means including a second shaft having generally cylindrical cell collecting surface attached to end of said second shaft for scraping cytology cell from the endocervix, said second shaft being ngly received in said first hollow shaft of said ndle so that said cylindrical collecting surface projects utwardly at a right angle from said planar collecting rface, said second shaft being frictionally engaged within said first hollow shaft when telescoping received herewith so that said shafts rotate together to enable the ndocervix and exocervix to be scraped simultaneously ereby enabling the cell samples to be collected simultaneously, said shafts also being separable from one another facilitate the separate removal and examination of the lanar surface from these

4,754,765

LESS CIGARETTE MAKING

Warren A. Brackmann; Stanislav M. Snaidr, both of Mississauga; Takeshi Nehyo, Willowdale, and Michael H. Sheahan, Toronto, all of Canada, assignors to Rothmans of Pall Mall Limited, Toronto, Canada

Filed May 14, 1986, Ser. No. 863,00

Claims priority, application United Kingdom, May 15, 1985, 8512292; May 15, 1985, 8512293; Jul. 25, 1985, 8518782

Int. Cl.⁴ A24C 5/14

U.S. Cl. 131—109.1 20 Claims

1. . r rod suitable

providing a metered flow of cut tobacco particles by metering cut tobacco from a source thereof and opening said metered cut tobacco to separate the individual tobacco particles one from another,
forming a wide stream of tobacco particles from the individual separated tobacco particles and transporting said wide stream to provide feed to the formation of a vertically moving shower,
forming a vertically-moving shower of cut tobacco particles from said feed, and
forming a filler rod from said shower,
all the cut tobacco metered from said source thereof and opened to separate the individual
other being used to form said w
individual separated tobacco particles in
nsported to provide said feed

4,754,766

TOBACCO SMOKE FILTERS

John A. Luke, Eastleigh, and James W. Phelpstead, Southampton, both of England, assignors to British-American Tobacco Company Limited, London, England

Filed Jul. 10, 1986, Ser. No. 884,042

Claims priority, application United Kingdom
85

1. co smoke filtration element comprising a first smoke-flow-through passage and a second smoke-flow passage co-extensive with and surrounding said first passage, the smoke filtration efficiency of said first passage being less than that of said second passage and said first passage being provided with heat deformable material which deforms and thereby only

TOBACCO MATERIAL PRO

illiam H. Graves, Jr., Pfafftown, N.C., as
nolds Tobacco Company, Winston-Salem,

Filed Nov. 21, 1986, Ser. No. 93

Int. Cl.⁴ A24B 3/14

131—37

(b) subjecting the tobacco material to high shear agitation (i) essentially in the absence of binding agent additives, (ii) in the presence of a moisture content of at l percent by weight and sufficient moi activation of the natural binding mat material but in the p than 30 percent by weight, and (iii) for a period of time sufficient to provide for activation of the natural binding materials of the tobacco material, and then
(c) subjecting the tobacco material so subjected to high shear agitation to compressive treatment by passing the tobacco material, at least once, through the nip of a system, and then
(d) forming processed tobacco material from the tob material which has been passed through the afore

4,754,768

HAIR PLUCKING MECHANISM

Joel H. Jabourt, 37 Urbandale Ave., Willowdale,
ada M2M 2G9

Filed Dec. 29, 1986, Ser. No. 946,854

Int. Cl.⁴ A45D 7/00

element,
said channel means further comprising at least
trically positioned generally C shaped channe
in pos
said C-sh
said base, said one C-shaped channel being
level, and said other C shaped channel being
higher level.

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PPED WITH A
ECTIONAL ELECTRIC MOTOR FOR WASHING
AND DRAIN CYCLES

Fornasari, Casale Monferrato, Italy, assignor to eltex
L, Casale Monferrato, Italy
Filed May 22, 1986, Ser. No. 866,075
ns priority, application Italy, Jan. 21, 1985, 67579 A/85

4,754,771
TUS FOR WASHING BEADS
Tonnerlini, Carlsbad; Philip A. Levinson, San
; John Maguire, Mission Viejo, and Luis R. Urquidi,
ain Valley, all of Calif., assignors to Hybritech Incorporated
17, 1985, Ser. No. 759
nt. Cl.⁴ B08B 3/02

washing and for aspir
tacle comprising
with a low pre

id receptacle.

earing surface,

aid tip surface for aspirating said washing receptacle through said plurality of ports

4,754,772
ARRANGEMENT IN A DISH-WASHING MACHINE
Carl-Gustaf H. Nord, Forserum; Per O. E. Eknor, and Ragnar
B. Berglund, both of Huskvarna, all of Sweden, assignors to
Aktiebolaget Electrolux, Sweden
Filed Jan. 21, 1987, Ser. No. 5,627
Claims priority, application Sweden, Jan. 31, 1986, 8600437
Int. Cl.⁴ B08B 3/02, 13/0
111
6 Claims

g said liquid, an outlet
chamber and connected
aid circulation pump, a drain pump for pum
waste liquid in said washing chamber, a filter
the path of said outlet opening including a filter
m walls and a fine sieve having
ed substantially centrally in said
hich liquid can pass radially in a
housing being c
pump by means
id filter housing,
being located in said filter hous
tubular part of the fine sieve, said
d arranged that the pressure drop across said
the fine sieve is evenly distributed around its
l shield being tube-shaped and co-axially sur
ubular part of the fine sieve and at its upper part
osed annular sec
the interior of said

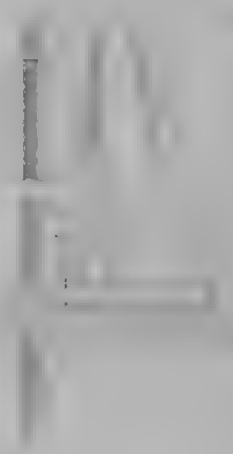
a maximum value at the diametrically opposite side of said filter housing.

MANUFACTURE
James R. Rex, 1017 4th St., Suite 1, Santa Monica, Calif. 90403
PCT No. PCT/US86/01867, § 371 Date Apr. 23, 1987, § 102(e)
Date Apr. 23, 1987, PCT Pub. No. WO87/01262, PCT
Date Mar. 12, 1987
Continuation-in-part of Ser. No. 774,133, Sep. 9, 19
abandoned. This PCT applicatio
Int. Cl.⁴ A45B

1. A disposable umbrella, comprising a flexib
film and a frame having the film secured to the ou
the frame comprising a single, rigid sheet having.
a fold line for folding the frame, the fold line forming a

COLLAPSIBLE SHELTER
Ashley Leader, Bateman, Australia, assignor to Equipm
Design Services Pty., Ltd., Perth, Australia
Filed Nov. 5, 1986, Ser. No. 927,644
Int. Cl.⁴ E04H 15/06, 15/00, E04F 1

PIPELINE
John E. Otterenshaw, Ft. Saskatchewan, Canada
The Dow Chemical Company, Midland, Mich
Filed Dec. 21, 1987, S
Int. Cl.⁴ F16
137—1



sheet material
o water and w

placing a flexi
inner membe
stantially im
pernally
capa

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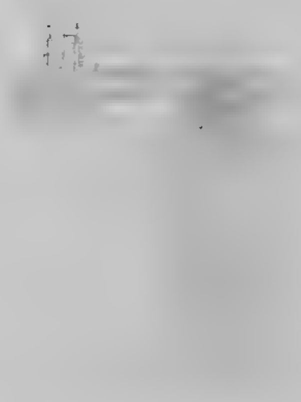
gm supported by said actuator

er flaring outwardly with re-

second flexible rolling dia-
ctuator body and including a

LATOR BATTERIES
Frode, Oskarshamn, Sweden, assignor to Sab Nife AB,
skrona, Sweden
o. PCT SE86 00360, § 371 Date Apr. 3, 1987, § 102(e)
Apr. 3, 1987, PCT Pub. No. WO87 01172, PCT Pub
Feb. 26, 1987
PCT Filed Aug. 11, 1986, Ser. No. 44,596
rity, application Sweden, Aug. 14, 1985, 8503797
Int. Cl.⁴ F16K 31/126



fine an annular

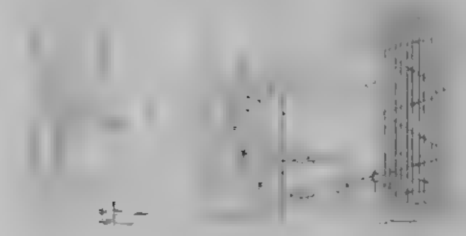
4,754,778
VELOCITY BOOST BODY WITH WRAP-AROUND PITOT
TUBE
John W. Duffy, Tama, and Dennis G. Sickels, Marshalltown,
both of Iowa, assignors to Fisher Controls International, In
o. 54,378

said first casing operatively coupled to
aphragm for movement therewith
regulating means n g for exerting pressure
on the other side

for regulating flow in a flowpath, said valve
a movable valve disc and linkage means
e disc to said movement means,
oost body having a wrap-around pitot tube of
ss-sectional area forming the on
id flowpath and said one side of

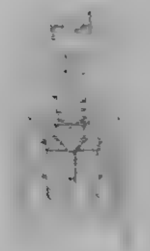
first casing in the
ion in said flowp

TOR AND MIXER FOR FOUNTAIN
TION FOR PRINTING PRESSES
hase, 30 Vinci Crescent, Dollard des Ormeaux,
Quebec H9B 2N1, Canad
Filed Aug. 12, 1987



1. In a printing press liquid circulation system of the type
erein liquid is circulated to and from a fountain pan through
t and a return conduit, respectively, an upright
ving a liquid filter medium intermediate its
nber defining an upper chamber section and a
hamber section above and below said filter medium
ely, said return conduit being connected to said upper
r section, a liquid circulating pump having an inlet
g in the bottom of said lower chamber section and an
onnected to said supply conduit, said filter chamber
aled and under vacuum by the ac of said pump
n the latter is operating, whereby the
pan is first filtered by said filter me
lated by said pump back to said pan, and
ng means to maintain the liquid level i
ection above the inlet of said pump

4,754,780
PRESSURE BALANCED HYDRAULIC CO
Robert F. Smith, III, P.O. Box FF, Stafford, Tex
Filed Feb. 10, 1987, Ser. No. 13,008
Int. Cl.⁴ F16L 29/00, 37/22
137—614.04
A coupling comprising a male member an



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RRUGATED PIPE
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Wavin B. V., Zw
Filed Au

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re to nal liner

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4,754,78

E ASSEMBLY & CLIP THER

ryton, Ohio

ed Sep. 23, 19

co Corporation, Taylor, Mich.

Filed Dec. 3, 1985, Ser. No. 804,26

ms priority, application Italy, Dec. 11, 1984, 68231 A/84

Int. Cl.⁴ F16K 11/06

. 137—625.4 17 Claims

ed plate of hard material mounted in the cartridge,

vable plate housed in the cartridge

l to the movable plate for moving

to regulate the

responsive member having a surface exposed

s the hydraulic

and apply a

4,754,784

HAVING A SUPPORTING AND ADJUST

DEVICE FOR WARP YARN GUIDANCE

Georg Senn, Ruti, Switzerland, assignor to Sulzer Brother Limited, Winterthur, Switzerland

Filed Dec. 30, 1986, Ser. No. 947,623

Claims priority, application Switzerland, Jan. 13, 198

ment rotatably mounted in said frame,

g and adjusting device for warp yarn guidance

n said support element; and

sting mechanism for adjustably fixing said sup-

element to same frame, said adjusting mechanism

luding an adjusting flange connected to said support

lement and adjustably secured to said frame and an adjusting spindle rotatably secured to said flange and fixed to said frame for pivoting said flange in response to rotation of said spindle

4,754,785

METHOD AND APPARATUS FOR DELIVERING A PREDETERMINED AMOUNT OF MATERIAL TO A CONTAINER

Bernard C. Eisenberg, Rockaway, N.J., assignor to Neoax, Inc.,

Continuation-in-part of Ser. No. 698,810, Feb. 6, 1985, Pat. No. 4,576,209. This application Jan. 23, 1986, Ser. No. 820,311

Int. Cl.⁴ B65B 1/06

U.S. Cl. 141—1 21 Claims

1. In apparatus for delivering a predetermined amount of material at a predetermined location to each of a plurality of moving containers, the apparatus having

thereof disposed lower than the central portion thereof,

means for depositing a flow of material upon the turntable inwardly of the periphery thereof, the material being adapted to move radially outwardly over th

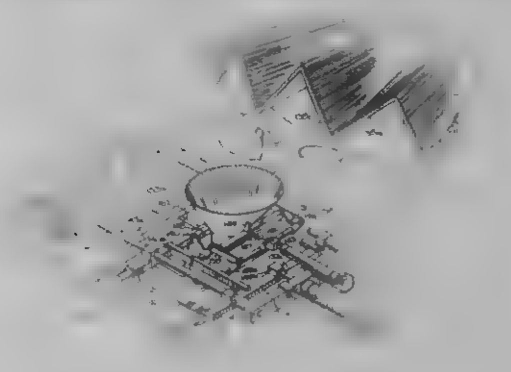
the turntable as the turntable rotates;

means for rotating the turntable about its pivotal ax

a plurality of hippers,

means for mounting the plurality of hoppers spaced from one another with the mouth of each hopper facing upwardly beneath the periphery of the turntable,

means for moving the plurality of hoppers in the direction of rotation of the turntable to enable each of the plurality of hoppers to receive material moving radially outwardly over the periphery of the turntable



turntable for releasing material from each of the plurality of hoppers successively to a different one of the plurality of moving containers, the moving of the plurality of hoppers from adjacent the depositing means to adjacent the releasing means enabling each hopper to receive the predetermined amount of material from the periphery of the turntable, the improvement comprising:

means disposed adjacent the means for releasing material from each of the plurality of hoppers for urging the flow of material released from each of the plurality of hoppers to enter successively a different one of the plurality of moving containers, and

means for cyclically advancing the urging means from adjacent the material releasing means toward and substantially in synchronism with the movement of each different successive one of the plurality of moving containers as the material is released thereinto and for cyclically reversing the urging means to return the urging means to adjacent the material releasing means

4,754,786

STERILE FLUID STORAGE AND DISPENSING APPARATUS AND METHOD FOR FILLING SAME

Roderick Roberts, 23652 Via Ortega, Trabuco Canyon, Calif. 92679

Filed Sep. 5, 1986, Ser. No. 904,346

Int. Cl.⁴ B65B 3/04

U.S. Cl. 141—1 11 Claims

6. A method for manufacturing, sterilizing, and dispensing fluids within a closed environment, comprising the steps of

preparing the fluid in a disposable mixing vessel which is located in a substantially sterile environment,

transferring the fluid from the mixing vessel to a disposable reservoir container,

placing at least one disposable storage element in com

sterili

the f

placed in

moving the fl

disposable st

ea after the sterilizing element

ig area have been sterilized

permit the storage element to be d

liquid filling area while leaving th

steril

the

and sterile environment

4,754,78

WOODTURNING TOOL HAVING CIRCULA

Vincent S. Smith, 82 Warwick Street, Hobart, Ta

tralia

Continuation-in-part of Ser. No. 658,389, Oct. 5, 1984. This application Apr. 22, 1986, Ser. No. 854,

2. A

timber w

a long, straight, rod

a handle at one end of

a cutting head of unitar

tool shank and rigid with the tool shank said cuttin

including

an open-ended circular hole formed solely withi

cutting head and extending entirely therethrougl

hole providing an inner surface of

the cutting head having an outer

and extending at least in part about th

each end opening of the hole having a r

riphery which is of continuous extent about

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to cen
ng edge

e respective planes containing the cut-

progressively cut the workpiece

B27L 5/00; B27C 7/04

nd second ends

e first end for releasable fastening the

ur blades, each of the blades longitudinal axis of the chuck radially utside of the chuck and also extending second end of the chuck, each of said flat side being on the leading face of rotation thereby providing f the blades including a second ling from its outer edge at an angle to the first ing in a plane perpendicular to the plane of an

from chuck

se at an angle to the outside of the he end of a log between the uprise and the blade for reducing splitting of the g a split or crack together

nufacturing a chuck,

ck having first and second ends, said ng four blades, each of the blades ex- longitudinal axis of the chuck radially utside of the chuck and also extending wardly from the second end of the chuck, each of said des including a first flat side being on the leading face e blade in its direction of rotation thereby providing iding a second igle to the first

side, the bottom of each second side extending from the second end of the chuck to the outside ck and having an uprise at an angle to the out- chuck for holding the end of a log between the uprise and the second side of the blade for reducing splitting of the log end, and

cutting off a desired amount of the outer circumference to size the chuck to one of a desired size without destroying the effectiveness of the uprise

4,754,789

[illegible]-EDGED WOODWORKING TOOL FOR A WOODWORKING MACHINE

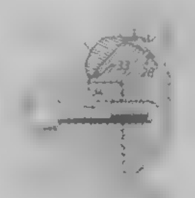
Karl-Erik A. Jonsson, Floraplan 14, S-802 28 Gävle, Sweden

Filed Feb. 9, 1987, Ser. No. 12,478

Claims priority, application Sweden, Aug. 27, 1986, 8603618

Int. Cl.⁴ B27G 13/10

41 7 Claims



1. A three-edged tool (12) for a woodworking machine, the edges of said tool being arranged with equal angular spacing about a tool body and protruding from said tool body, surfaces (24, 25, 26) for cooperation with means (14, 15) for fastening said tool to a tool carrier (10) being arranged between said edges, wherein distinct recesses (27, 28, 29) are provided in said surfaces (24, 25, 26), said recesses being so shaped as to retain said tool by mating engagement with a correspondingly shaped protrusion (30) provided on said tool carrier (10), and so as to act as a kerf in order to guide a tool breakage in the event of overloading of a tool edge (18) to an area between two of said recesses (27, 28)

4,754,790

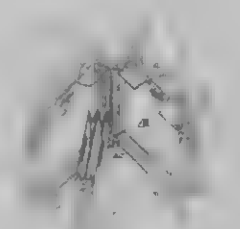
CONVERTIBLE PURSE

Phyllis L. Meyers, 385 North San Rafeal, Pasadena, Calif. 91105

Filed Mar. 30, 1987, Ser. No. 31 562

Int. Cl.⁴ A45C 3/08

U.S. Cl. 150—104 10 Claims



1. A combination of an outer purse and an inner purse comprising

an outer purse having first and second body portions, each including a pair of upstanding side body panels, a bottom panel and a pair of end panels, one of said end panels being formed with a hinge along a vertical axis permitting the side panels to be separated horizontally to define a cavity between the first and second body portions which removsaid inner purse being sized to be removably received within the cavity of the outer purse, with said inner purse including a bottom panel, a plurality of longitudinal side panels extending upward from the bottom panel and a pair of end panels joined along their edges to said longitudinal side panels and extending upward from the bottom panel, said bottom, longitudinal side panels and end panels defining a plurality of open-topped compartments therebetween for storing articles,

means selectively closing the tops of the compartments of said inner purse to retain said articles therein, and

fastener means on the side panels of the outer purse selectively engageable with the longitudinal side panels of the inner purse to releasably secure the inner purse within the cavity of the outer purse as said articles are deposited within or removed from the compartments, the outer purse being selectively interchanged with a second outer purse without disturbing the articles i

4,754,791

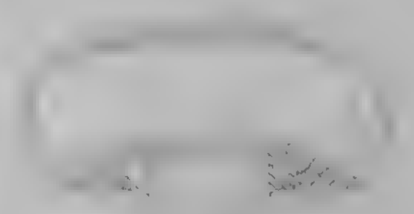
VEHICLE WHEEL AND PNEUMATIC TIRE ASSEMB[illegible] HAVING A COUNTER-WEIGHT

Werner Flebbe, Neustadt, Fed. Rep. of Germany, assignor to Continental Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Aug. 13, 1986, Ser. No. 896,387

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1985, 3529510

Int. Cl.⁴ B60B 13/00



wheel and pneumatic tire assembly having a with said assembly including a rigid rim having adially inwardly extending rim flanges, a pneu- hicle tire, the beads of which are mounted on the inner side of said rim next to said rim flanges, and ive cover rings that occupy spaces disposed axially lly of each of said beads between each bead and said he improvement wherein:

h of said respective cover rings has slot means, with each of said slot means having a base that is disposed within its cover ring; and

respective mounting elements for supporting a given one of said counter-weights, with each mounting ele ing into one of said slot means

4,754,792

TIRE VALVE ASSEMBLY FOR CENTRAL INFLATION SYSTEM

Eugene R. Braun, Royal Oak, and Gary R. Schultz, Novi, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jun. 4, 1984, Ser. No. 617,647

The portion of the term of this patent subsequent to Feb. 3, 2004, has been disclaimed.

Int. Cl.⁴ B60C 23/10, 29/00

U.S. Cl. 152—417 20 Claims

1. A tire valve assembly for a central tire inflation system, aving fluid connection means for connection tely pressurized and exhausted fluid conduit id conduit constantly communicating with the ressurized chamber of an inflatable tire,

pris
dui
out of sealing engagement th
biasing said first valve mem
with said first valve seat, a
commu
to sa
opp
surfa
econd
said fi
sealable by a
of sealing e
constantly
means and
into sealing

a fourth surface area opposed to said third effective to overcome the bias of less than pr minimum refer move said se ment with said sec second valve surface with said first condu pressurization of said first conduit will not est communication between said first and seco through said first valve means, fluid pressure surface area exceeding said predetermined n erence pressure effective to maintain said se member in sealing engagement with said s seat

4,754,793

BUTYL ELASTOMERIC COMPOSITIONS HAV[illegible] REDUCED PERMEABILITY TO GASES

Sheikh A. H. Mohammed, Sarnia, Canada, assignor to P Limited, Sarnia, Canada

Filed Jun. 23, 1987, Ser. No. 65,568

Int. Cl.⁴ C08K 5/01, 3/04; C08L 9/0

S. Cl. 152—510

1. A new rubber composition, the vul educed permeability to gases, comprising

one hundred parts by weight of a selected from the group consis nated butyl rubber and bron

from about 3 to about 2 homopolymer having C to about 150° C a 75° C.,

from about 30 to abo carbon black

from 0 to about oil, and

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4,754,794

ORCING ASSEMBLIES COMPR
INFORCEMENT THREADS AND A MATRIX,
ARTICLES COMPRISING SUCH ASSEMBLIES

**Louis Bocquet, Artonne; Jacques Gouttebessis, Chanat-la
steyre, and Maurice Rey, La Raye-Dieu, all of France,
gnors to Compagnie Generale des Establissements Miche
Clermont-Ferrand, France**

Filed Jan. 10, 1986, Ser. No. 817,906

priority, application France, Jan. 18, 1985, 85 00875

characterized by follow

s surrounded individually with a
plastic material I.
ed with material I are arranged

ds between the threads sheathed with
reads being grouped in such a manner
inforce-

rounds

4,754,795

SHUTTER

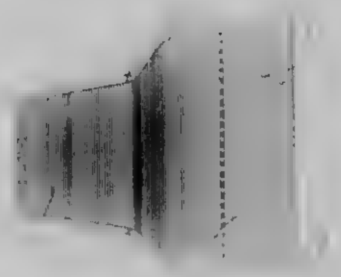
**od, Bingley, United Kingdom, assign
ited, Bradford, United Kingdom**

iled Dec. 19, 1986, Ser. No. 944,505

priority, application United Kingdom, D

and

tioning means for the curtain, disposed
shaft and the outer tube of the roller



VERTICAL BLIND ASSEMBLY

**Piergiorgio Ciriaci, Hollywood, Fla., assignor to Micro Molds
Corporation, Hialeah, Fla.**

Filed Jan. 22, 1987, Ser. No. 5,888

Int. Cl.⁴ E06B 9/30

14 Claims

1. An end cap assembly designed for use with a vertical blind assembly and selectively mountable on either end of a head casing in cooperative connection with a pull c
tioning rod both used for positioning of a plu
blinds relative to the head casing, said end cap
prising:

(a) a base including connecting means formed thereon and disposed and structured for securement to either opposite longitudinal ends of the head casing thereof,

(b) receiving means formed on said base for receiving an end
f the positioning rod cooperatively disposed relat
e end of the head casing to which said base is s
a pulley assembly including at least one pulley
disposed to receive the pull cord thereon a
pulley mounting means secured to said b
tured to mount said one pulley element sel
f at least two predetermined positions, and
mounting disposition of said one pulley ele
ther of said two predetermined positions de
n orientation of said base and the ends of
n which it is mounted

4,754,797

WAY ANIMAL DOOR AND FRAME

nce, 27795 Ave. Hopkins, Valencia, Calif

Filed Jan. 13, 1987, Ser. No. 2,820

Int. Cl.⁴ E06B 7/28

1. 160—354

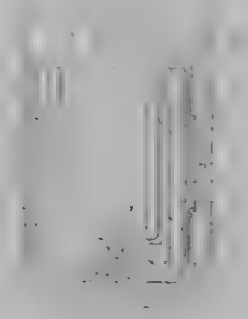
pet door adapted to be plac

lly rectangular first fram
g substantially in a pla

said frame having first mounting means in the form of an upper, horizontal member and a substantially rectangular opening therein through which an animal may pass,

a pliant door having a width slightly smaller than said frame opening, and having an upper edge portion extending adjacent said horizontal member of said frame;

a generally U-shaped pliant border for covering the gap between said door and said frame opening and having upper end parts,



said upper edge portion and said upper end parts constit
second mounting means,

the upper end parts of said border extending upward ad
cent said horizontal member of said frame,

a plurality of holes in one of said mounting means, and a corresponding plurality of pegs on the other of said mounting means extending into said holes, for securing together said two mounting means;

placement of said frame flush against the room door or wall serving to hold said door and said border in place on said frame

4,754,798

G METAL IN A FLOWABLE FIRMLY
MOLD CAVITY

George D. Chandley, and Rodney G. Rick, both of Amherst, N.H., to Metal Casting Technology, Inc., Milford, N.H.

Filed Sep. 15, 1987, Ser. No. 96,663

Int. Cl.⁴ B22C 9/04

1. A method of casting a metal object comprising

(a) providing a disposable pattern of meltable materia

(b) positioning said pattern within a container;

(c) flowing a sand-binder mixture around said pattern, said mixture comprising non-refractory binder present at a level,

(i) sufficiently high to enable said mold to se

(ii) sufficiently low to allow said mixture to
round the pattern,

) sufficiently low to allow said mold to be readily re
moved from the casting subsequently formed therein
nd

sufficiently low to ma
rosity after setting.

nder mixture

place of the pattern by heating said

(f) th

g) allowing said metal to solidify, and

4,754,799

PROCESS FOR DIE-CASTING ALUMI
LOW IRON AND HIGH ALUMINI

Ronald K. Robinson, 14533 Fairford Ave., Norwalk

Filed Feb. 11, 1987, Ser. No. 13,462

Int. Cl.⁴ B22D 17/10

depositing the molten aluminum alloy into a cylinder of a casting machine, the cylinder being in fluid communication through a gate with a die cavity of a desired configuration, the die cavity being such that the aluminum article cast in the cavity weighs approximately 3 to 7 ounces, and the gate having a cross-sectional area available for fluid flow in the range of 0.06 to 0.12 inch²,

moving under pressure a piston in the cy
the molten alloy through the gate int
movement of the piston in the cylinder
that the rate of flow of the molten aluminum alloy thr
the gate into the die cavity is approximately 67

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4,754,8()

; UNDISSOLVED ALLOYING IT FROM ENTERING CONTINUOUS CASTING MOLD

arles R. Jackson, Dyer, Ind.; Daniel Rellis, Jr., Lansing, Ill.; Howard M. Pielet, Munster, Ind.; Debanshu Bhattacharya, Richton Park, Ill.; Larry A. Frank, Crown Point, Ind.; Purnendu Dasgupta, Highland, Ind., and John R. Knoepke, Munster, Ind., assignors to Inland Steel Company, Chicago, Ill.

Continuation of Ser. No. 808,570, Dec. 13, 1985, abandoned

This application Aug. 21, 1987, Ser. No. 88,526

Int. Cl.⁴ B22D *1/00*

along

gh the

etal, a

m of said tundish, a sump located

, said

im of

in the

ndish

d upstream and downstream of the

etal into said tundish at an entry loca

h bottom part which is upstream

d molten alloying ingredient in difference in density between nent and said mol

STING METHOD AND APPARATUS THER

Ueno; Takeshi Mihara, and Kouji Kawabata, naguchi, Japan, assignors to UBE Industries, Ltd.,

Continuation of Ser. No. 832,989, Feb. 24, 1986, abandoned

This application Aug. 3, 1987, Ser. No. 81,553

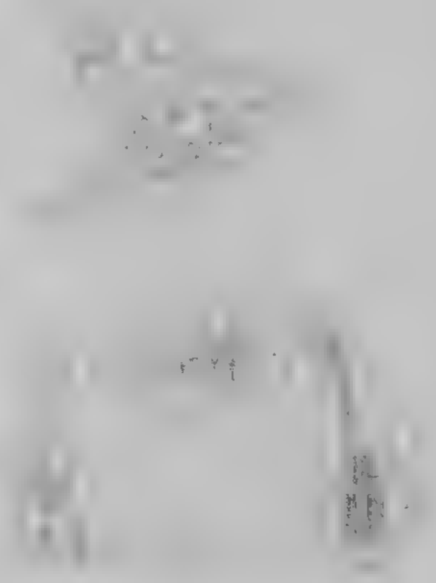
s priority, application Japan, Feb. 25, 1985, 60-34610; 1985, 60-72766

olten metal into said

positioning means for aligning said units in a predetermi position within said recesses;

a plurality of work stations positioned on a locus of rotation of said units held in said recesses of said rotary table,

die clamping means disposed at one of said stations for imparting a regular clamping force to said molds, wherein said die clamping means is comprised of a base platen,



against which one of said units abuts when said regular die clamping force is imparted, said base platen being spaced apart from said rotary table

a push-up cylinder disposed between each of said units and said holder associated therewith, for floating said unit above said base platen when said regular die

means for removing said product from said m

4,754,802

US CASTING APPARATUS FOR STEEL PLATE

Takashi Yamauchi; Morihiro Hasegawa, and Takayuki Nakanori, all of Yamaguchi, Japan, assignors to Nisshin Steel td., Tokyo, Japan

Filed Aug. 5, 1987, Ser. No. 81,736

Int. Cl.⁴ B22D *11/06*

ll system continuous casting machine includ

---

ir of rolls and the molten steel in the pouring usly cast into a steel plate through a gap the pair of rolls, a continuous casting apparatus for te comprising

ide dams consisting of plate-like bodies having the lower edges located above the narrowest position of the pair of rolls and contacting the molten steel in the pouring basin to dam up said molten steel,

movable side dams taking charge of positions below said lower edges of the fixed side dams;

aid fixed and movable side dams being constituted said both side dams, and

aid movable side dams consisting of endless stalled rotatably in the casting direction

4,754,803

RING COPPER ROD BY CASTING, HOT ROLLING AND CHEMICALLY SHAVING AND PICKLING

Benjamin A. Escobar, Jr.; Lester J. Wahner; Gilbert Montes, and John T. Farraro, all of El Paso, Tex., assignors to Phelps Dodge Industries, Inc., Phoenix, Ariz.

Filed Feb. 2, 1987, Ser. No. 9,775

Int. Cl.⁴ B22D *11/12, 11/14*

64—45

e manufacture of copper rod suitable for it drawing or rolling to form copper wire said rod zed by improved surface smoothness and substan of surface oxides comprising the steps of providing a n bath of copper having a purity corresponding to the rity of electrolytically refined copper cathodes, casting said n bath into cast copper bar, hot-rolling said cast copper rm hot-rolled copper rod, regulating the temperature t-rolled copper rod within the range of 250°–1,200° gulating the passage of said hot-rolled copper rod rough an aqueous solution containing a controlled concentration of sulfuric acid within the range of 180–450 grams/liter ee acid and a controlled concentration of stabilized hydrogen roxide within the range of 5 to 50 grams/liter concentration produce a chemically shaved and pickled hot-rolled copper he temperature of said aqueous solution con d and stabilized hydrogen peroxide to a

g a sample length of said chemically shaved a d t-rolled copper rod, subjecting said sample to a test to indicate the surface smoothness of sai d and pickled hot-rolled copper rod, and ore of the process variables comprising the

rod is improved and the surf

ed

4,754,804

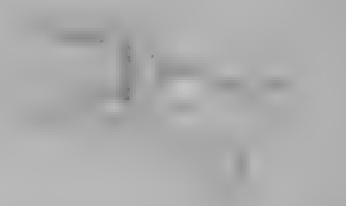
METHOD AND APPARATUS FOR PRODUCING RAPIDLY SOLIDIFIED METALLIC TAPES

Masao Yukumoto, and Michiharu Ozawa, both of Chiba, J assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Oct. 13, 1987, Ser. No. 108,212

Claims priority, application Japan, Oct. 17, 1986

Int. Cl.⁴ B22D *11/06*



1. A method for producing a ta continuously pouring molten

solidification shell

said keep member

of molten metal to remove said shell from said cast sterior thereof

2. An apparatus for producing a rapidly solidi tape, comprising a pair of cooling rolls and a pa members each disposed close to side edge faces of sa rolls to define a casting space, and a pouring nozzle g molten metal to said casting sp d keep member comprises a fi tatably arranged along a guide g and lower ing said sid of molten n of molten metal produced on and adhered to the sur side roll

4,754,805

METHOD FOR TRANSFORMING THE TEMP OF HEAT AND HEAT TRANSFORMER

Markus Rothmeyer, Gleiwitzer Str. 28, 8058 Erding of Germany

Filed Mar. 4, 1985, Ser. No. 707,665

Claims priority, application Fed. Rep. of 1984, 3408192

Int. Cl.⁴ F25B *17/08*, F24J

U.S. Cl. 165—1

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ntermediate temperature T₁ to an ad-

ntaining a solid adsorbent to desorb a

the solid adsorbent at a working fluid

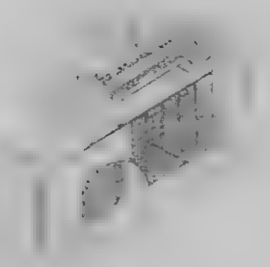
e liquid

id solid adsorbent where said

isorbed and liberates heat at a

ed in phase)

fluid pressure



4,754,807

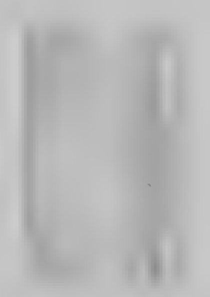
SAND SCREEN FOR PRODUCTION OIl

Udo Lange, Celle-Alvern, Fed. Rep. of Germany, Otis Engineering Corporation, Dallas, Tex.

Filed Mar. 9, 1987, Ser. No. 23,219

Claims priority, application Fed. Rep. of Germ 1986, 3614537

Int. Cl.⁴ E21B 43/0



tubes hav rough which production fluids flow into an annular collar concentri r tubes, said collar having first to said first and second inner comprising a cylindrical body s of said first and second inner an annular shoulder portion etween said first and second

ler and said first and second outer

METHODS FOR OBTAINING WELL-TO COMMUNICATION

Richard A. Harmon, and Harry A. Wahl, both Okla., assignors to Conoco Inc., Ponca City, Okla.

Division of Ser. No. 876,962, Jun. 20, 1986, Pat. No. 4,662,440 this application Jan. 16, 1987, Ser. No. 7,856

---

fluid in a well pattern having a central injec rounded by a plurality of production wells, all being communicated by a fracture, comprising:

(a) injecting fracturing fluid containing a proppant material into said central injection well and into said fracture to prop said fracture adjacent said injection well;

(b) simultaneous with step (a), injecting fluid into one or more of said production wells toward which it is desired to reduce the flow of injection fluid, thereby causing a greater portion of said proppant material to be placed in said fracture adjacent said central injection well in directions away from said one or more of said production wells toward which it is desired to reduce the flow of injection fluid, and

(c) thereby s injection fl rates and

DEGRADATION OF A VISCOUS MICROBIAL POLYSACCHARIDE FORMULATION

Marinus van Zanten, Rijswijk, Netherlands; Jeffrey B. Pedley Sittingbourne, and Phillip L. Sturla, Gillingham, both of England, assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 811,936, Nov. 5, 1985, abandoned. This application Apr. 10, 1987, Ser. No. 36,743

Claims priority, application United Kingdom, Nov. 9, 1984, 8428448

Int. Cl.⁴ E21B 43

U.S. Cl. 166—246 3 Claims

1. A process for the degradation with acid of a viscous microbial polysaccharide formulation which is applied in oil and/or gas reservoir operations, which comprises providing in the reservoir a polysaccharide formulation comprising at least 0.03-5% w/v of polysaccharide derived from a microorganism, which is selected from the group consisting of Xanthomo monas species, Agrobacterium species, Alcaligenes species, Beijerincka species , or is derived from a mixture of at least two microorganisms selected from the above group, and an amount of a metal bromide salt or a metal bromide salt mixture within the range of 50-80% w/v which is sufficient to adjust that it is re, and mula

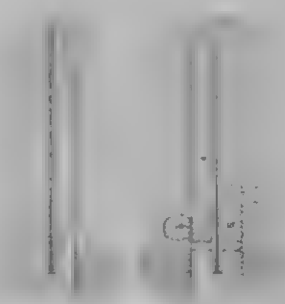
METHOD FOR PATCHING CASING LEAKS

Karl E. Bennett, Hockessin, Del.; Jeff J. Jurinak, Ponca City, Okla.; Chandra L. Mowery; Walter M. MacKinlay, both of Corpus Christi, Tex., and Larry D. Johansen, Carrizo Springs, Tex., assignors to Conoco Inc., Ponca City, Okla.

Filed Mar. 16, 1987, Ser. No. 26,237

Int. Cl.⁴ E21B *33/138, 47/06, 47/10*

166—253 2 Claims



packer lo steps of

(a) appl casi said level

(b) injecting a casing and s annulus and up said tubing unt said gelable solution at least to the packer

said casing

(e) causing sa said earth strata ad

(f) after said plugging

CONTROLLED RE INJECTION POIN

Pierre Ledent, Tilff, and Claus Sonntag, Beaufays, both of Belgium, assignors to Institution pour le Developpement de la Gazeification Souterraine, Liege, Belgium

Division of Ser. No. 834,625, Feb This application Aug. 24

Claims priority, application B

1. In a proc

duced by the gasification of s provement which comprises

(a) forming said borehole borehole w ing to a dis

(b) plugging

(c) in

each closed valv

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at the
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ETHOD AND A
r, assignor to Baker O

ting a packer in a subterranean well,
the following axially stacked elements
body,
upper

age having a first set of
omprising the steps of
(1) inserting a mandrel through the first set of said alig
bores,
(2) securing said mandrel to said hydraulic housing for axia
co-movement
(3) securing said man
movement,
(4) positioning a fluid pressure actuated piston
hydraulic housing and said lower cone body
(5) detachably connecting a downwardly extending rod at
d to said retainer plate, said rod traversing a
f aligned bores in said receptacle housing, said
y, said expandable packing body, said
ly, said upper cone body and said

d rod
downwardly to concurrently radially expand said packing element and said slips and move said rod downwardly relative to said lower cone body, and
(7) effecting a undirectional ratcheting connection between the bottom end of said rod and said lower cone body thereby trapping the compressive setting forces in said expanded packing body and said slips

36. A retrievable packer for subterranean wells comprising
eans radially expandable slip
ed fluid pressure responsive
ve force to said packing means
same and set said packer, a
l packing means and said slip

said slip means in said

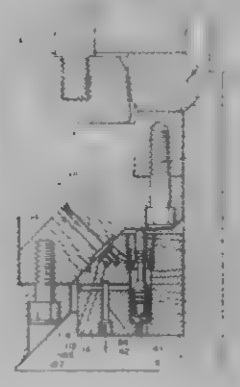
TREE CAPLESS CONE SEAL MANIFOLD

Charles E. Jennings, Thousand Oaks; Jon E. Hed; Jeffrey D. Otten, both of Ventura, all of Calif.; Lee A. Gillette, Rio de Janeiro, Brazil; Bruno T. Schauerte, Rio de Janeiro, Brazil, and Christian G. Marius, Rio de Janeiro, Brazil, assignors to Vetco Gray Inc, Houston, Tex.

Filed Mar. 27, 1987, Ser. No. 941,260
Int. Cl.⁴ E21B *34/04*
I 166—344 15 Claims

9. In a system for the production of oil or gas from a subsea well, including a completion tree having valve actuators operated by hydraulic fluid to control the flow of oil or gas from
ell from a remote source of hydraulic fluid under pressure
d to said tree in two paths for different operational
os, the improvement comprising,
a cone seal manifold having a first cone formed thereon as part of said tree for controlling and directing the flow of hydraulic fluid from either path to the valve actuators said cone seal manifold including,
a plurality of bores in said cone seal manifold,
a shuttle valve in each of said bores and moveable fro
first position to a second position,
said shuttle valves having means cooperating with said bo
to form valve chambers,
first passageways connecting said valve chambers to on
path of hydraulic fluid under pressure,
second passageways connecting said valve chambers to
valve actuators,
said shuttle valves in said one position opening said va

apart seal means cooperating with
plurality of second valve chambers,
third passageways for connecting said second
said second path of hydraulic fluid under p



third passageways opening into said first cone and con-
ctable to said second passageways when said shuttle
lves are moved to said second position thereby closing
id first passageways

4,754,814
L PACKER WITH INTERNALLY ADJUSTABLE SHEAR RELEASE MECHANISM

**Henry J. Jordan, Jr., Huntsville, Tex., assig
Hughes Incorporated, Houston, Tex.**

Filed Jun. 10, 1987, Ser. No. 60,296
Int. Cl.⁴ E21B *23/04, 23/06, 33/129*
U. S. Cl. 166—387 6 Claim

1. A well packer of the type used to maintain
er and outer concentric conduits within a well
r comprising,
drel having upper connecting means for connection in a string of well conduit extending to the well surface, an exterior surface, and an internal bore,
an annular packing element carried about the central man
drel which is radiall

rom the central mandrel exterior surface
space,
a movable piston ring located within the ann
engaging the setting
ing a sliding seal wit
upon movement of
an initially static pist within the
space, the initially having a seal end
spaced apart from the movable piston ring, the mo
piston ring and seal end, toge
of the setting sleeve and the c
mandrel, forming a piston chamber which commun
by means of an internal port in the central mandrel
the bore of the central mandrel,
abutment means located on the central mandre
with the in
ment of the
tion
a lock body located in the annular space, th
having a locking end at one extent and havin
end provided with a
ratchet means carried
with the outer enga
settin
lock
shear n
travel with respect to the
shear means having a pres
movement of the central ma

the lock body and s
axial direction to th

4,754,815
SOD LAYING MACHINE

**Gerardus J. Brouwer, Keswick, and Henry Zwamborn, Sutt
both of Canada, assignors to Brouwer Turf Equipment L
ited, Keswick, Canada**

Filed Sep. 16, 1985, S
Claims priority, application Can
Int. Cl.⁴

1. A sod laying machi
(a) a frame,
(b) means mounted
forw
(c) me
(d) sup
roll

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f said roll as said roll unwinds.

4,754,818

...INE FOR TILLAGE TOOL

...uymon, Okla., assignor to Adams Hard... .. Guymon, Okla.

...uation-in-part of ... 7, 1985, Pat. No ... No. 862,29...

Claim.

...achably connected to said elongated ... n upper side and an under side and ... k, said ... r side

side thereof projecting into and wedg... said slot and having a forward end

protuberant rib centrally located on ... oint directly over said ... rewith, and having a

...ies of ... m said

...ying on the opposite ... said upwardly ...ud deflecting

4,754,817

...EMPLATE FOR ... DRILLING

Riley C. Goldsmith, Houston, Tex., assignor to Conoco ... Ponca City, Okla.

Filed Aug. 25, 1982, Ser. No ...

Int. Cl.⁴ E21B 7/1...

...or drilling widely spaced boreholes int... ducing subsea formation comprising the steps

positioning a subsea drilling template on the bottom of a body of water, the subsea drilling template including a ... lly disposed, substantially cylindrical ... of said substantially cylindrical dril... longitudinal axis wherein at least one ... lity of drilling guides has its longitudinal axis ... an angle of less than 90° relative to a horizontal ... ssing through said subsea drilling ...

mooring a drilling vessel floating on the surface of the body of water in a first position relative to the subsea drilling template using a plurality of mooring catenaries,

extending a drill string from said floating vessel to said subsea template, said drill string passing into said one of said plurality of drilling guides along its longitud... wh...

drilling ... pro...

reposit... to said ... ng catenaries;

extending said drill st... said drilling guides,

drilling ...

and re...

METHOD OF MEASURING DRILL BIT FLUID FLOW

Roy W. Wood, 119 Persimmon St., Birmingham, Ala. 35214

Continuation of Ser. No. 901,068, Aug. 26, 1986, abandoned. This application Oct. 16, 1987, Ser. No. 110,548

Int. Cl.⁴ E21B 21/08

175—48 1 Claim

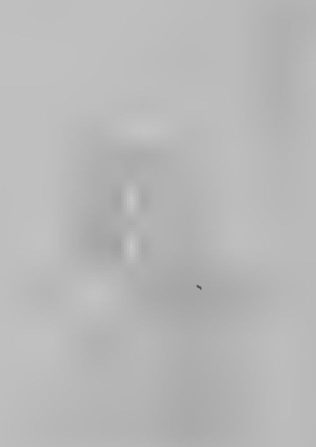
...ethod for measuring the volume of cutting liquid or

...ceiving the cutting liquid or gaseous fluid, comprising the

providing a lateral passage in the drill bit communicating at its inner end with the plenum chamber and opening at its outer end to the exterior of the drill bit;

closing the outer end of the lateral passage with a removable plug;

removing the drill string and drill bit attached thereto from a bore being drilled with the drill bit,



causing a cutting liquid or gaseous fluid to flow through the drill string and into the drill bit plenum chamber; and

measuring the flow of the cutting liquid or gaseous fluid being supplied to the drill bit by observing the meter attached to the bit whereby a determination can be made of the status of such flow without removing the drill bit from the drill string

4,754,819

METHOD FOR IMPROVING CUTTINGS TRANSPORT DURING THE ROTARY DRILLING OF A WELLBORE

Thomas B. Dellinger, Duncanville, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 11, 1987, Ser. No. 24,447

Int. Cl.⁴ E21B 7/08, 17/02

U.S. Cl. 175—61 2 Claims

... transport efficiency ... re with a drill string ... lity of sections of drill pipe interconnected at ... having a drill bit at the lower end thereof,

... y varying in diameter and located a... ts along said drill string and

...ection to the flow of dr...

4,754,820

DRILLING HEAD WITH BAYONE...

James T. Watts, Fullerton, and Eric G. Dodd, Paramount ... of Calif., assignors to Drilex Systems, Inc., Houston, Te...

Filed Jun. 18, 1986, Ser. No. 875,...

a tubular spool,

a clamp rotatably mou... provided with first bayonet coupling means and adapted for rotation between a clamped position and an unclamped position,

... drive ... per adapted for sealing engagement with said kelly ... member

said outer body provided with second bayonet co...

... adapted for lowering said upper body ass... said clamp onto said tubular spool while sai...

George ... Suffolk ... PL

... Oct. 31, 1986, Ser. No. 925,6...

..., application United King...

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first body member, said two chambers of said fluid communication through a valve means [illegible] said chambers [illegible] position, said

[illegible] motion by said move [illegible] ervoir relative to said

[illegible] when said valve [illegible]

VEYOR LOADS

aul J. Altenpohl, Jr., both of Gladwyne, Altenpohl, Inc., High Point, N.C

2, 1987, Ser. No. 111,271

G01G 19/00

[illegible]

a predetermined number of load sensing [illegible] ng said load sensing devices at locations [illegible] eyor path for successive loading by ea [illegible] shackles during said mo [illegible] id load sensing devices

data fr [illegible] readout

CAPACITIVE POSITION SENSING MEANS FOR WEIGHING APPARATUS OF THE ELECTROMAGNETIC LOAD COMPENSATION TYPE

Arthur Baumann, Bertschikon, Switzerland, assign [illegible] Instrumente AG, Greifensee, Switzerland

Filed Jun. 12, 1987, Ser. No. 60,82

Claims priority, application Switzerland, J

[illegible] apparatus of t [illegible]

[illegible] onnected with said load-receiving member for [illegible] ent within the magnetic field of said permanent magnet [illegible] means for generating an error signal (U_F) that is a [illegible] n of the deviation of said load receiving member from [illegible] position, and compensating current generating means [illegible] al a compen [illegible] ection of said

[illegible] e members, said first pair of capacitive [illegible] ding generally parallel with the direc- [illegible] vement of said load receiving member, and a [illegible] metal shield member (15) connected with the [illegible] said load receiving and base members, said

[illegible] aid load receiving member relati [illegible]

[illegible] ns (11, 12) for genera [illegible] 1, and

4,754,824

PPARATUS FOR STEERING A VEHICLE

Gunnar Olsson, Örnsköldsvik, Sweden, assignor [illegible] glund & Soner, Ornskoldsvik, Sweden

Filed Jan. 27, 1987, Ser. No. 7,20

Claims priority, application Sweden, Jan. 24, 1986, 8600325

Int. Cl.⁴ B62D 11/04

U.S. Cl. 180—6.48 4 Claims

1. A method for steering a motor-driven road vehicle in which steering of the vehicle for straight ahead vehicle move- [illegible] or for turning of the vehicle to the left or to the right is [illegible] in response to activation of a steering device by caus [illegible] g left and right traction devices to move at the same or at different speeds, said vehicle incorporating clutch devices operative to enable variable power transmission to be established between a drive motor and the left and right traction [illegible], respectively, and brake devices which are operative to [illegible] h a variable braking effect on the left and the right [illegible] devices, respectively, and further incorporating sen- [illegible] of the respec- [illegible]

[illegible] nerating a steer con [illegible] ing control device [illegible]

[illegible] enerating a steer control real value with the aid of the [illegible] gnals produced by th [illegible]

[illegible] comparing the steer control set-point value with the steer control real-value;

d) activating the clutch and/or brake devices associated with respective left and right traction devices so that the steer [illegible] rol real value approaches the steer control set-point [illegible]

[illegible] steering the vehicle with the aid of pressure changes effected in individual hydraulic steering control pressures for respective clutch devices and brake devices;

f) creating primarily pressure changes in a hydraulic steering control pressure for a clutch device associated with a left or right traction device in a directional sense corresponding to the result of the comparison made between the steer control set-point value and the steer control real-value, said pressure changes being effected at least when the steer control set- [illegible] es within given limits;

[illegible] least when the steer control set-point value lies [illegible] given limits, pressure changes in a hydraulic steering control pressure for a brake device from a pressure having no braking effect to a pressure at which a braking effect is obtained solely when changes to the hydraulic steering control pressure for the clutch device associated with the same traction devices have been found insufficient to accomplish movement of the vehicle in the manner de- [illegible]

[illegible] reasing respective hydraulic steering pressures between a minimum and a maximum value for as long as the aforesaid comparison indicates that the total steering control pressure is too low for the steering control real-value to coincide with the steer control set-point value,

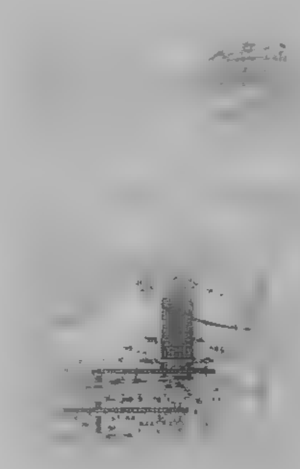
[illegible] e steering control [illegible] cates that the total [illegible]

AME SLED

Darrell [illegible] 5 S.E. Compto [illegible] 97006

Continuation of Ser. No. 8 [illegible] application Jul [illegible]

Int. Cl [illegible]



1. [illegible] ame sled comprising

an elongate, game carrying box having [illegible] stantially parallel sides, a planar base, and [illegible] forward end,

a powered winch including a spool having a [illegible] wound [illegible] drawn [illegible]

a V-shaped fairlead h [illegible] attached to said box [illegible] said forward end, in [illegible] apex [illegible] apex [illegible]

TRACTOR FOR AGRICULTURAL PURPOSES

Cornelis van der Lely, 7 Brüschenrain, Zug, Switzerland

Continuation of Ser. No. 715,208, Mar. 25, 1985, [illegible] 4,648,472, which is a continuation of Ser. No. 468,38 [illegible] 1983, Pat. No. 4,523,656. This application Mar [illegible]

Claims priority, application Netherla [illegible] 8200663

U.S. Cl. 180—24

1. An agricultural tract [illegible] having at least one lifting device, at least [illegible] shaft and ground engaging wheels arran [illegible] each said group having two tandem set [illegible] such that one sa [illegible] on one side of t [illegible]

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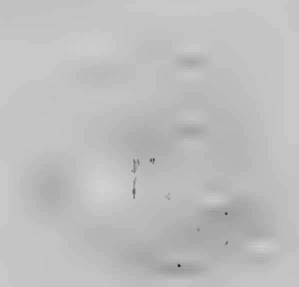
motor; at least one hydraulic pump for supplying hydraulic fluid under pressure for driving each said hydraulic [illegible]

[illegible] the tractor being about [illegible]

4,754,827

[illegible] MOUNTING STRUCTURE [illegible] AUTOMOTIVE VEHICLE

[illegible] Hirabayashi, Tokyo, Japan, assignor to Nissan Motor [illegible]mpany, Limited, Yokohama, Japan
[illegible]tinuation of Ser. No. 715,027, Mar. 22, 1985, abandoned. This application Mar. 2, 1987, Ser. No. 21,557



[illegible] other, said fixed plate being attached to [illegible]

[illegible] osed within said [illegible] th said second [illegible] g essentially par[illegible] rst walls, [illegible] ed plate and said [illegible] g said movabl[illegible]

[illegible] for fixing a battery onto said movabl[illegible]

[illegible] eans fixed to said movable plate and [illegible]

vertical plane of said first openings within a given range, movement of said stabilizing means beyond said given [illegible]ge being prevented by the edges of said openings, [illegible]herein said second means comprises a clamp having an [illegible]entially horizontal member and a pair of first essentially [illegible]rtical rods having lower ends engaging, respectively, [illegible]th second openings formed in said second walls to fix [illegible]ttery onto the movable plate and said stabilizing [illegible]d integral, respectively, with said first rods and [illegible]g outwardly from the lower ends of said first [illegible]ls, said horizontal rods passing through the first open[illegible]gs without contacting the edges of the first openings.

4,754,828

[illegible]OWER STEERING SYSTEM FOR A VEHICLE

Mitsuharu Morishita, and Shinichi Kohge, both of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan
Filed Apr. 29, 1987, Ser. No. 44,051
Claims priority, application Japan, Apr. 29, 1986, 61-100052; Apr. 29, 1986, 61-100060

[illegible] peratively connected to steer ste[illegible] to force exerted thereon by an [illegible]

[illegible] signal representative thereof,

[illegible] vehicle-speed sensor for detecting vehicle speed to gener[illegible] an output signal representative thereof;

[illegible]tor operatively connected with said steerable road [illegible]eels and connected to be energized by a source of [illegible]ctric power to transmit a force to said steerable road [illegible]eels for power-assisting steering motion caused by the operator through said steering wheel,

a clutch means interposed between said motor and said steerable road wheels and connected to be switched on [illegible]

[illegible]ted to receive output signals from said [illegible] said vehicle-speed sensor for control[illegible] respective running and switching operations of said [illegible]tor and said clutch means, said control unit including [illegible]s responsive to the operator-induced steering torque [illegible]ne fluctuations in steering torque due to [illegible]ration and to vary the running and switc[illegible] the fluctuations during trans[illegible]ting force from said motor to [illegible]

4,754,829

[illegible]WER STEERIN[illegible] VEHICLES

Yasuo Shimizu, Saitama, Japan, assignor to Honda Giken Ko[illegible] Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 7, 1987, Ser. No. 35,580
Claims priority, application Japan, Apr. 11, 1986, 61-83454
Int. Cl.⁴ B62D 5/04

[illegible]t shaft coupled to a dirigible wh[illegible] [illegible]ric motor applies an assistive to[illegible]

[illegible] for detecting [illegible]

[illegible]ve control means, responsive to detected signals [illegible] steering torque detecting means, for applying [illegible] signal to said electric motor,

[illegible] detecting the speed of trav[illegible]

4,754,830

MOTOR-DRIVEN POWER STEERING SYSTEM [illegible] VEHICLE

Mitsuharu Morishita, and Shinichi Kohge, both of Himeji, [illegible]pan, assignors to Mitsubishi Denki Kabushiki Kaisha, Ja[illegible]
Filed Mar. 3, 1987, Ser. No. 21,207
[illegible]aims priority, application Japan, Mar. 19, 1986 [illegible]

[illegible]ting an output signal re[illegible]

[illegible] steerable road [illegible] and a second [illegible] rack tooth portion being in meshing eng[illegible] [illegible]pinion, [illegible]d pinion being in meshing enga[illegible]

[illegible] pinion for power assisting ste[illegible]

[illegible]shi Hyodo, Okazaki, an[illegible] [illegible]apan, assignors to Aisin [illegible]
Filed Dec. 4, 1[illegible]

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said running speed and said

ing means to activating said elect

accumulating a pow

r supplying the
and
r controlling the operation of
mean
ply means has judging mea
ited in

amount of power supply is
decreases below a predeter-

gher than said prec
and judging means

4,754,832

UNT FOR FOUR WHEEL VEHICL

726 Redwood Rd., and Douglas D. Banghart
alif. 94546

g wheel and one other said powered
osite side of said vehicle, said sk com

4,754,833

COOLING CHAIN DRIVE FOR A MOTORCY HAVING BALLOON TIRE

Masahiro Kawashima, Shizuoka, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Japan

ivision of Ser. No. 665,782, Oct. 29, 1984, Pat. No. 4,645,02

This application Oct. 24, 1986, Ser. No. 923,009

stem for an oil
e means, an el

4,754,834

FOUR WHEEL DRIVE SYSTEM HAVING DRIVIN FORCE DISTRIBUTION CONTROL RESPONSIVE VEHICLE LATERAL

Kiyotaka Ozaki, Yokosuka, and
of Japan, assignors to Nissan
Japan

Filed Jan. 21, 1986, Ser. No. 820,055

Claims priority, application Japan, Jan. 21, 1985, 60-9

member for driving said second wheel pair, and
clutch provided between said input member
second output member for varying torque transmitt
from said input member to said second output member
varying a clutch engagement force,
cornering behavior sensor for sensing a corner b
said vehicle and producing a signal representin
acceleration of said vehicle,
r for sensing a vel
cle
nsor for a positi
sensor for sensing a ge
control means for determining a
ion ratio between a driving force for
aid first wheel pair in accordance with said signal of
vehicle cornering behavior sensor, estimating a
ng force transmitted from said engine to said input
ber of said transfer through said transmission from the vehicle speed, accelerator position and gear position sensed by said vehicle speed sensor, accelerator sensor and gear position sensor, determining a desired magnitude of the torque transmitted through said transfer clutch from said distribution ratio and said total driving force
nd controlling the torque trans
clutch in accordance with
herein said control means contin
of the driving force apportioned to said second
the vehicle lateral acceleration increases

4,754,835

NTROL ARRANGEMENT FOR FOUR-WHEEL VEHICLES

rbert Stelter, Weissach; Matthias Dietz, Stuttgart; Lothar Witte, Vaihingen, and Rainer Wuest, Im Kruegele, all of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Oct. 15, 1985, Ser. No. 787,073

Claims priority, application Fed. Rep. of German
1984, 3437435

first differential driven directly and the second
driven by coupling means having adjustable powe
sion characteristics, comprising
nent on said coupling means for
al and for adjusting the power trans
of the coupling means in response theret
for determining a vehicle driving speed,
r determining a desired power output
means for determining a magnitude of a desi
force as a function of the vehicle dri
desired power output,

CONTROL VEHIC SUPPRESSI WHEN AUTOMATIC M INTERMEDI

Yoshiharu Harada; Yutaka Taga, and Kuni
Toyota, Japan, assignors to Toyota Jidosha
Aichi, Japan

Filed Aug. 26, 1986, Ser. No. 9
pplication Japan,
Int. Cl.⁴ B60

rd J. McCorm
rporation, Gree

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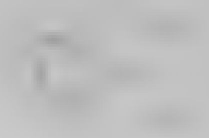
r of the truck, an idler wheel assembly
r wheel mounted adjacent the other
member
d said

ler member and said idler wheel assembly, the im
ent which comprises steering means for applying



GNITION BY

ating said sys-
itch having on, momentary on, and off posi-

ty of wires connecting said control box to vari
nents of said vehicle's electrical system, said

d to the battery wire leading to the
supply power to said by-pass system,
cted to the ignition wire leading from
h to supply power to said vehicle's

third and fourth wires connected to the ac
leading from said ignition switch to supply

park and a
by-pass syst
put into reverse;

a sixth wire connected to the cold side of the brake switch to deactivate said by-pass system when said
cle's brake pedal is depressed

a seventh wire connected to the horn wire between the
and the horn relay to sound a sounding device if
activated while said sy

TY MEASUREM
VELOCITY
thmann, both of H
to Halliburton Company, Duncan, Okla.
Filed May 17, 1985, Ser. No. 734,997
Int. Cl.⁴ G01V *1/00, 1/40*

(b) an internal chamber in said sonde defined
ing upstanding outer housing about said
ng in said housing
g well fluid to
rein the fluid ma

(c) spaced transverse walls across said sonde defining upper and lower ends of said chamber wherein said walls form fluid tight partitions,

(d) acoustic transmitter means supported by one of said walls adjacent to said chamber for transmitting a pulse of acoustic energy wholly within said chamber;

(e) acoustic receiver means for receiving a tra
from said transmitter means;

(f) said transmitter and receiver means cooperating with said chamber to enable fluid measurement within said chamber means; and

r measuring the elapsed time of transit of an
lse through the fluid in said chamber, said
ing an output signal indicative of aco

GENER

4,754,840
EMBLY FOR WORK PLATFO
ARTICULATING BOOMS
Wayne P. MacDonald, McConnellsburg, and Jeffery J. Ritz, Warfordsburg, both of Pa., assignors to JLG Industries, Inc., McConnellsburg, Pa.
Filed Oct. 7, 1987, Ser. No. 105,724

paratus for maintaining th
ther elevatable member relative to a fixed support wh
the member is raised or lowered relative to the fixed suppo
the member being mounted on a boom which is pivotally connected to the fixed support and has a fly end, comprising
pivot plate means defining a triangle having first, second and third mounting locations, each mounting location bein
disposed relatively adjacent a respective corn

l to pivot said second mounting means
rst mounting means,
r adjusting the orientation of said member
third mounting means for pivotally conne
ting means to said pivot plate means at said
mounting location, said adjusting means being further provided with pin means for pivotally connecting said adjusting means to said member at a location spaced from said third mounting l
means interconnects sa
ter so that the member
cation in correspondence with the pivoting of
d mounting means about said first mounting l
adjusting means being adapted to vary the spacing
pin means and said third mounting location; and
for pivoting the boom about the fixed supp
said pivot means pivots said second mount
g means, and said
pivot the member

Hagaway, Duncan, British Columbia, Canada V9L

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4,754,843

ting relatively
f the relatively inner section,
relatively outer section being
portion of the relatively outer

for the relatively inner section a roller
wardly of the top portion of the rela-

tending
direction, the entirety of the roller means will freely pass past the lug means of the relatively outer section of the ladder, thus permitting travel of the relatively inner section and the roller means carried thereby to be moved in the non-extending direction fully to permit full disassembly of the relatively inner section from the relatively outer
l without removal or other change of the roller
its support by the relatively inner section of

ERECTABLE SAWHORSE

utton, 3617 Mt. Everest Blvd., Sa

ed Jun. 8, 1987, Ser. No. 59,58
Int. Cl.⁴ B27B 21/0

n on said frame end

th between a first
l and an erected

4,754,845

STEP LADDER

H. Baker, 204 Buena Vista Dr., Long Beach, Miss.

ntinuation-in-part of Ser. No. 11,693, Feb. 6, 1987,
abandoned. This application Oct. 29, 1987, Ser. No. 113,900
Int. Cl.⁴ E06C 1/2

U.S. Cl. 182—170 3 Claims

1. A
an
del

cond rear support legs extending at a
angle from each other and from said

ns, descending

4,754,846

OIL RESERVOIR ASSEMB

obert W. Sulzer, Jr., Casselberry, and Donald I
tona, both of Fla., assignors to Westinghouse El
ittsburgh, Pa.

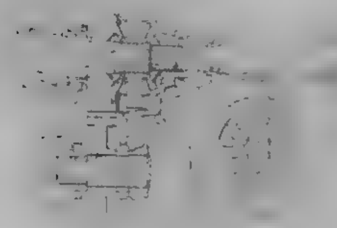
Filed Oct. 15, 1987, Ser. No. 108,671
Int. Cl.⁴ F01M 1

n oil reservoir
rethrough, and

the chamber

ASSEMB

Jack G. Glaze, Fort Wayne, and Ter
Ind., assignors to Dana Corporati
Dec. 31, 1986, Se



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g piston in the pumping cylinder
the pumping cylinder, and a

valve means controlling
line means such that pres
rder at one side of the
to move the p
into the pumpin

SYSTEM FOR ELEVATOR CAGE GUIDE MAGNETS
do, Inazawa, Japan, assignor to Mitsubishi De
ushiki Kaisha, Tokyo, Japan
Filed Jun. 12, 1987, Ser. No. 60,892
ms priority, application Japan, Sep. 29, 1986, 61
Int. Cl.⁴ B66B 7/04

n the hoistway parallel to and spaced fr

eans (18-22) for energizing the electro
ise to outputs from the gap detector
forces generated by the electromagnets
rails to maintain the sensed air gaps at

4,754,850
METHOD FOR PROVIDING A LO
SIGNAL FOR A TRACTION EL
William R. Caputo, Wyckoff, N.J., as
Electric Corp., Pittsburgh, Pa.
Filed Jul. 29, 1987, Ser. N
Int. Cl.⁴ B66B 1

viding an unbalanced torque com

torque when th

ompensation signal for the current refer
l loop in response to said detecting ste

CONTROL APPARATUS FOR ELI
gehiko Suzuki, Inazawa, Japan, assignor to
Kabushiki Kaisha, Japan
Filed Apr. 14, 1986, Ser. No. 851
Claims priority, application Japan, Apr. 15
15, 1985, 60-79521
Int. Cl.⁴ B66B 5
I. 187—129

controlling said position detector to

SIMULATED R
Anthony F. Mulé, 708 Mead
Bruce R. Marcel, 43 Harbor North, Amityville
Filed Mar. 23, 1987, Ser. No. 29,107
Int. Cl.⁴ H05K 5/00

a cast hollow simulated rock cabinet body of inverte
shaped cross-section having a base portion with an o
ing therein and forming interiorly a
said cast hollow body having an in

shi Uemura, O
Japan, assignors
a Kaisha an to Jidosha Ko
bi, Japan
ntinuation-in-part of Ser. N
abandoned. This applicati
Claims priority, applicat

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a solenoid assembly disposed rod of the shock absorber at the upper end of the rotary shaft of the motor vertically extending rod, a spring member fo rod vertically in one of the upward and dow tions and an electrical coil for driving the ro direction against the resilience of the spring and first stop means disposed within the cylin rod of the shoc member sec motor and la secured to the lower end of the rod ly for blocking the rotation of the a given location when the rod assume and for permitting the rotation of the abut when the rod assumes its upper position

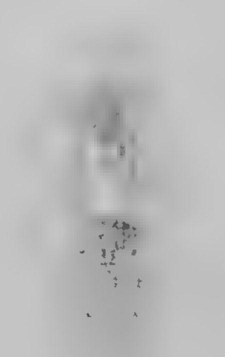
4,754,855

APPARATUS FOR DRIVING ROTARY VALVE OF SHOCK ABSORBER

Masataka Kuwana, Toyota; Tsukasa Watanabe, Kariya; Kouji Hirao, Chiryu; Takayuki Tomohara, Toyota; Masanori Hirose, Toyota, and Hidemori Tsuka, Toyota, all of Japan, assignors to Aishin Seiki Kabushiki Kaisha and Toyota Jidosha Kabushiki Kaisha, both of, Japan

Filed Sep. 19, 1986, Ser. No. 909,39

Claims priority, application Japan, Sep. 19, 198



ssion mechanism disposed within a cylindri l of a shock absorber and having an input upper end of tion gearing

4,754,856

HYDRAULICALLY CONTROLLED BRAKE

Gino Villata, Buttigliera D'Asti, Italy, assignor to Valeo, Paris France

Continuation of Ser. No. 323,590, Nov. 20, 1981, abandoned. This application Apr. 27, 1984, Ser. No. 604,604

priority, application France, Nov. 28, 1980, 80 2525

Int. Cl.⁴ F16D 55/225

sembled cylinder bodies; two pistons mounted ely one in each of said two cylinder bodies raulic chambers in said bodies, two friction to grip the rotatable part under the thrust of onse to generation of pressure in the hydraulic chambers, and conduit means feeding the hydraulic chambers, the improvement in which at least a portion of said conduit means crosses the assembly interface which is between the assembled cylinder bodies coincidentally with said fixing said fixing means being elongated and detachably inter ing said bodies and having an end that extends through the outer surface of one of said bodies, said fixing means comprising at least one screw engaged in a passage through the two cylinder bodies, said conduit portion comprising an annular

4,754,857

UNIVERSAL AIR CHAMBER MOUNTING BRACKET

John A. Urban, Plainwell, Mich., assignor to Eaton Corporation Cleveland, Ohio

Filed Jun. 7, 1982, Ser. No. 385,733

Int. Cl.⁴ F16D 65/14

U.S. Cl. 188—206 R

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chamber for each selected lever length by two spaced apa threaded fasteners having a known radius and a known sepa tion, said improved bracket comprising mountable to th portion extend mounting mber, said first section having a ough capable of receivi and centered about a l

equal to said aded fasteners.

4,754,858

AD FOR LUGG

arried luggage

ne stretchable

Hamamatsu, all of Japan, bushiki Kaisha, Japan

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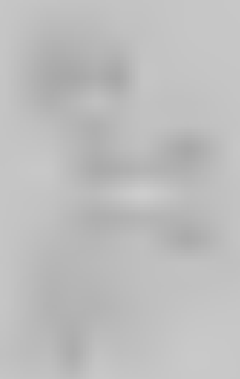
member between said clutch cover and said er circumferential edge portion of said spring member being held in position by a holder portion on the inner periphery of said clutch cover, an inner peripheral portion of



osed each lly inner side fulcrum thereof by said radially outer side fulcrum thereof said levers each being biased at an that agm- h of said levers

4,754,861
CLUTCH DISC

Noriaki Uenohara, Osaka, Japan, assignor to Kabushiki Kaisha Daikin Seisakusho, Osaka, Japan

Continuation of Ser. No. 753,473, Jul. 10, 1985, abandoned. This Apr. 17, 1987, Ser. No. 39,834

application Japan, Jul. 24, 1984, 59-112919[U]

g a spline hub, a flange on said hub des of said flange and friction washers between said flange and each of said side plates, wherein an engaging part to be engaged with one edge of the friction washer at one of said opposite sides of said flange is formed on said flange and is fitted with the outer edge of said washer and a bent part is formed on one of said side plates at said one of said opposite sides of said flange, said bent part abutting against id one of said opposite sides of said aging the inner edge of said friction

4,754,862
METALLIC ARTICLE DISCRIMINATOR

Adam Rawicz-Szczerbo, and Les Hutton, both of Oldham, England, assignors to Coin Controls Limited, Lancashire, England

Filed Dec. 23, 1985, Ser. No. 812,817

priority, application United Kingdom, 8500220

1. Coin discrimination apparatus comprising means defining a path for passage of coins under test, sensor coil means for forming an inductive coupling with coins under test during their passage along the path; a resonant circuit in which said sensor coil means is connected, said resonant circuit exhibiting a resonant frequency which varies in dependence upon the inductive coupling between the sensor coil means and the coin under test during the passage of the coin along the path, variable frequency oscillator means for energizing said resonant circuit, control means for varying the frequency of the oscillator means such that it tracks the varying resonant frequency of the oscillator means during passage of the coin along the path past the sensor coil means; and amplitude response means responsive to changes in amplitude of an oscillatory signal developed by the resonant circuit during said passage of the coin past the sensor coil means, whereby to provide a signal indicative of characteristics of the coin

4,754,863
WORKPIECE CONVEYOR

Hiroshi Tsuchiya; Kimikazu Ikemoto, and Masami Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha and Taiho Seiki Kabushiki Kaisha, both of Toyota, Japan

Filed Aug. 11, 1986, Ser. No. 895,231

Int. Cl.⁴ B65G 25/00

U.S. Cl. 198—339.1

1. A workpiece conveyor, comprising

first, second and third stations disposed in such a manner as to extend between a press of a preceding step and a press of a next step,

a carriage adapted for moving between said first, second and third stations,

a reversing mechanism which includes a pair of right and left reversing jaws and means for driving said jaws independently and separately for elevation and rotation, wherein said reversing mechanism is disposed at said fi

first horizontally stationary workpiece receive posed at said second station and movable up

an unloader mechanism mounted on said carriage

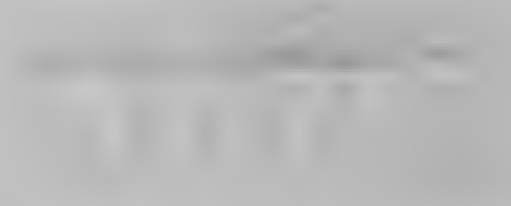
second workpiece receiver means disposed on said unloader

4,754,864

Machine Company, Richmond, V

Filed Jan. 20, 1987,

Int. Cl.⁴ B65



es of the belt upper

embers, a V-sha s converging to ubstantially at the longitudinal cenr flight, the flat blade plates being ge frame and extending from said

Alan J. gland, England

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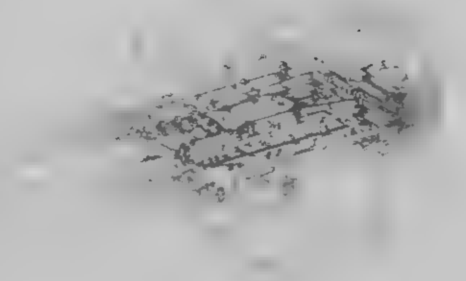
their ends remote from the mounting blocks, means for mounting blocks to respective fixing ecured in alignment to a frame struc pposite sides of the belt, the mounting te construction, each block having lly located metal sleeve one of which

gement being such that during pparatus the mounting blocks to appropriately pre-load the the conveyor belt by virtue of the ic plastics material of the mounting r resilient means acting to urge each yor belt and tituted by the

ssignor to Zenith Electronics



for transporting a plurality of PC boards rally linear end-to-end array from a PC board

of the PC boards in a subtion and in abutting contact forward and aft PC boards s of respective leading

and displacing each of

said drive engage and in turn at said

4,754,868
CONVEYOR BELT CLEANING APPARATUS

Septimus Hughes, Cleadon Village, near Sunderland, and J Darley, Castlebord, both of England, assignors to Conve Improvements (Doncaster) Limited, Doncaster, England

Filed Dec. 9, 1986, Ser. No. 939,707

Claims priority, application United Kingdom, 86 .5766

4,754,869
DOWN FLOW DISTRIBUTOR

Donald S. Hutchison, Rte. 2, Box 1390, Cushing, Okla. 74023, and Thomas D P. Kiser, Jr., 621 W. Cherry, Drumright, Okla. 74030

Filed May 22, 1987, Ser. No. 53,002

Int. Cl.⁴ B65G 47/26

U.S. Cl. 198—536

1. An apparatus for p gate material, comprising.

- a support frame,
- a first hopper pivotally mounted on the support frame, the hopper adapted to receive aggregate material from a means for supplying aggregate material
- the hopper having a discharge opening in the bottom passage of aggregate material
- a second hopper rotatably mounted be on a shaft extending upwardly th and journaled in

of rotation of the second hopper and inclu

by providing for unifor

TWO MASS V

A. Hallman, Colu

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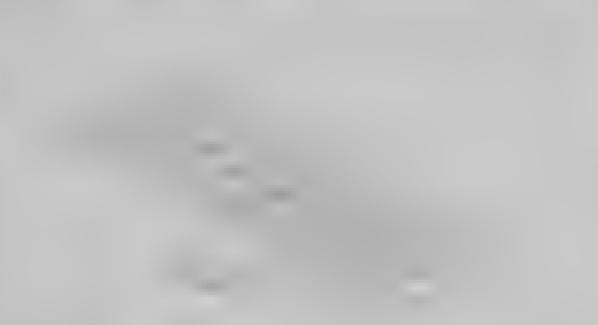


4,754,873
CARRIER FOR DISPLAYING A LEVEL

[illegible]gene Rawlings, 343 Shore Dr., Ft. Myers, Fla. 33905, and [illegible]ohn D. Coleman, Philadelphia, Pa., assignors to Eugene Rawlings, Ft. Meyers, Fla.

Filed Aug. 7, 1987, Ser. No. 82,5[illegible]
Int. Cl.⁴ B65D 25/00, 25/04

[illegible] for the separated arms [illegible]

4,754,[illegible]
[illegible]AR SOAP AND ITS PACKAGE

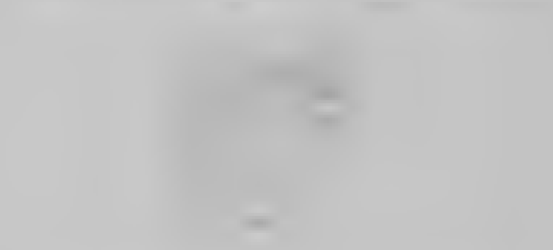
[illegible]laney, 11333 Bluff Rd., Traverse City, Mich. 49[illegible]

Filed Jan. 28, 1987, Ser. No. 7,911
[illegible]nt. Cl.⁴ A47K 5/00, C11D 15/00, 13/0[illegible]

[illegible] 20 Claims

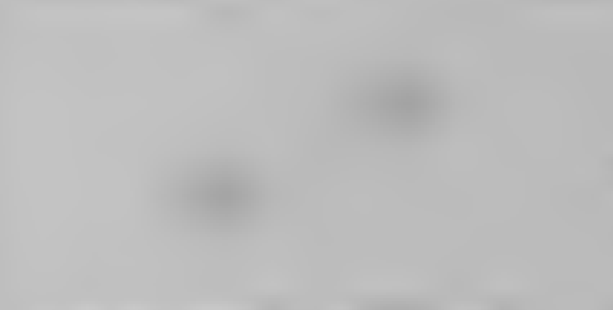
[illegible] case and bar of soap combined into a three [illegible] n-topped, lower receptacle having a [illegible] ich said bar of soap is molded and held, and an upper closure portion on said receptacle that is larger in its horizontal dimensions than said bottom portion,

[illegible] substantially filling [illegible] closure portion and [illegible]



[illegible] film magazine frame comp[illegible] a plurality of sides and a pl[illegible] adjacent sides, said body [illegible]

[illegible] magazine frame is inserted in the shaft, said turn[illegible] formed as a cover which is turnable outward[illegible]



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ithout splicing or cutting of t

d to said first panel a

l Jun. 1, 1987, Ser. No

Int. Cl.⁴ B65D 75/

said first panel al

l a thin plas

wo sides and

a third fold line parallel to the first and second fold li

and a

third panel connected to said second connecting mea

and

third panel being swingable to cover said second panel and said third panel having means for coupling the third panel with said second panel to provide a se

line a

4,754,881

TUS FOR CLASSIFYING OBJECTS ACCORDING TO THEIR LENGTHS

Lorenz Bohle, Im Luren 5, D-4722 Ennigerloh, Fed. Rep. Germany

Filed Sep. 9, 1986, Ser. No. 9

Claims priority, application Fed. Rep. 1986, 36

rtion

wall

of said one end wall to be

said array to positions gener-

wall portion, a hand hold

f said one end wall to enable

wo sides of

to an exter

LECTRONIC DEVICE

hita, Kans., assignor to

ston, Oh

Filed Oct. 1, 1987, Ser. No. 103,56

ns attached to said first panel and comprising of foam like material attached to said first

l groove and for generating signals denoting monitored objects, said monitoring mea

s having lengths outside

, 433 Muddy Branch Rd

8, 1986, Ser. No. 84

3C 17/4; B02C 1

gm with apertur

4,754,883

OBILE TRUNK ORG

1723 Forest Cove Dr.

Filed Feb. 13, 1987, Se

Int. Cl.⁴ A47G

—71

ünchen, Johann Pohu, Olching

urg, Fed. Rep. of Germany, ass

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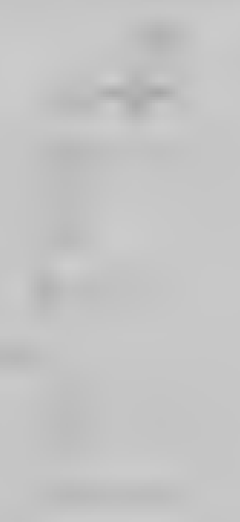
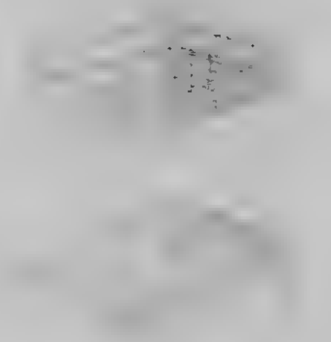


4,754,88[illegible]

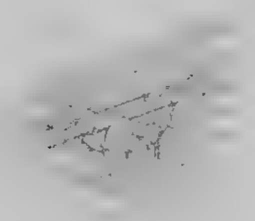
MOBILE FORMS CART

[illegible]ywood Ave., Ruxton, Md. 21204



[illegible]ase and contiguous therewith, removable oppositely [illegible]ed interlocking sides having bottom tongues adapted [illegible]ck with said stand alone base and top tongues adapted [illegible]ck with said removable tray, and additionally folding [illegible]pted to interlock with said removable tray and a[illegible]

[illegible]ken, Japan



[illegible]adio control aerial automatic [illegible] an object by a carrying apparat[illegible] [illegible]y, comprising

[illegible]al main cableway for suspending the carr[illegible]

[illegible] said aerial main [illegible] [illegible]d running whee[illegible]

a power source attached to said outer casing;

hoisting means which are wound and driven by [illegible] source;

a receiver, attached to said outer casing, for receiving radio waves which are transmitted from a transmitter and for generating control commands to drive said power source and said hoisting means in response to said radio waves received;

at least two rotary shafts which are attached to said out[illegible] casing and rotated by said power source

a sub cableway, suspended in parallel with said aerial ma[illegible] cableway, for supporting the carrying apparatus, an[illegible]

a plural[illegible]

NURSING BOTTLE WITH A CHECK V[illegible]

Mei Yueh Ou, 10F, No. 230, Yung Chi Road, Tai[illegible]

[illegible]led Feb. 26, 1987, Ser. No. 22,93[illegible]

Int. Cl.⁴ A61J 9/00 15/0[illegible]

a cap, having an opening top for the disposition of said nipple member therethrough with said groove in engagement with an inner edge of said opened top of the cap, and being provided with vertical protruding ridges 33 around the external surface thereof for easy turning operation of said cap which is further threaded on the inner surface for effecting the attachment of the cap to the mouth of bottle

a bottle, for use in containing fluid therein, being provided with external threads in registry with the inner threads on the inner surface of said cap at the top mouth thereof, with the topmost edge of said mouth being in a flat form for the purpose of supporting a partition board thereon; the present nursing bottle being characterized in,

pipette having an end to end opening therethrough and attached with a partition board near the top end thereof which is equal in diameter to the bottom of said nipple member, and has a number of holes in a countersink form disposed thereon with an extended groove projected therefrom and a fixing hole in semi-spherical form being placed at the end of said groove for the mounting of a valve cap, the top end of said pipette being disposed just under the tip of said nipple member,

a valve cap structured in accordance with the countersink hole and provided with an [illegible] has a semi-spherical fixing end [illegible] for registry with said fixing hole so to permit the pivotable opening of said valve cap in one way only,

whereby the present nursing bottle can be used by a child in a standing position holding the bottle in [illegible] the fluid contained therein being dis[illegible] said pipette with the bottom end there[illegible] fluid which is pumped out therefrom [illegible] suction on the nipple member, and the [illegible] to be discharged via said discharge hole [illegible]ened when said nursing b[illegible] [illegible]ipple member is sucke[illegible]

4,754,88[illegible]

[illegible]ARATE

[illegible]laus R. Letsch, and Michael C. Letsch, both o[illegible] Sweden, assignors to S.A.P. Scandinavian Ameri[illegible] [illegible]ship, Camarillo, Calif.

Filed Jun. 9, 1986, Ser. No. 871,866

Claims priority, application Sweden, Sep. 24, 19[illegible]

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ENT SAFETY SEAL

Sleepy Hollow, Canfield, Ohio 44406, and Milton, 6690 Harrington Ave., Youngstown, Ohio

Aug. 20, 1987, Ser. No. 87,191

Int. Cl.⁴ B65D 41/

sing phery

s to applied, a se body portion

connected to said main body portion and folded back along a first hinge line tion, said tab portion defining a first folded cond folded part with a second hinge line

nwardly and said paper facing up portion overlaying said paper of said

said first and second

4,754,891

ERAL NUTRITION DELIVERY SYSTEM

and Robert Reese, Seymour, both of assignors to Sherwood Medical Company, St. Louis,

f Ser. No. 831,362, Feb. 20, 1986, Pat. No. 4,688,595 lication May 22, 1987, Ser. No. 53,060

Int. Cl.⁴ B65D 1/02

plastic bottle having a base portion and vertical sidewalls having lower port other near said base portion and tabs extending outwardly on opp lower portions, said tabs having oute to said vertical sidewalls to tle against vertical movement ted into said base support and said tabs m said tapered lower portions which beyond said vertical sidewalls, and said cap a vent opening arranged between the interior of s he exterior of said cap having a valve to permit fl aid bottle, but prevent flow of air or fluid from said luding a fluid tube extending there aid inlet opening near the bottom of

CLOSURE FOR A CONTAINER

Charles T. Retief, 1 Crane Close, Tokai 7945, Sou

Filed Jan. 21, 1987, Ser. No. 5,620

Claims priority, application South Africa, Ja 86 0460

d sealing member for sealing a co sealing member being located insid e of the cylindrical skirt wall and el wall, and p through which the material that injection molded into the cap filled with the material tha

CONTAINER FOR MIXING AND STORAGE

Lyman D. Donn, Chicago, Ill., assignor to Zantek, Inc., Chi Ill.

Continuation of Ser. No. 840,042, Mar. 17, 1986, abandoned This application Jun. 1, 1987, Ser. No. 57,519

Int. Cl.⁴ B65D 7/

arrangement f liquifiable ingred

said container body uniformly three

ontainer body defining a chamber for receiving a containing the ingredients and said neck section defining the container body opening to said container body chamber, with said flange being in circumambient relation

and section, and handle ring substantially rectilin respectively project dle ring portion.

Robert R. Dys Foundry & Ma

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cap including a substantially cylindrical cap annular wall portion and a bottom wall portion, said cap further including a stepped annular ridge defining a ridge upper annular wall portion and a ridge lower annular wall portion joined by a ridge upper horizontal wall portion;

means affixed to said annular wall portions of said cap and said body member for threadably engaging said cap to said

[illegible] aging said cap to said b

4,754,896

DISPOSABLE LEAK PROOF FILTER CONTAINER

James P. Roltgen, Eden; Larry G. Wills, West Bend; Dennis S. McGuigan, Cross Plains, and Dennis J. Lathrop, Fond du Lac, all of Wis., assignors to Brunswick Corporation, Skokie, Ill

1, 1987, Ser. No. 40,880

B65D 33/14, 51/04

ilter

an oil filter

spond to the

to substan

leasably sealing

manner whereby said

ose of a used filter container

4,754,897

PRESSURIZED DISPENSING

Brace, Thetford, England,

k, England

Filed Feb. 11, 1987, Ser. No. 13,573

Claims priority, application United Kingdom, F

8623248; Sep. 26, 1986, 8623248

Int. Cl.⁴ B65D 83/06; F15D 1/02

222—402.16 24 Claims

ensing apparatus for a gas pressurized dispensing actuator and a flow omprises a housing housing surrounding he impedence he gas pres including a ising and having at least a irface portion extending up and an aperture defining a

geometry of the ap

presented by the constriction in response to variation in the pressure differential across the diaphragm, the downstream face of the diaphragm cooperating in use with the seat, one of the face and the seat being recessed such that a seal line is formed between the downstream face of the diaphragm and

the seat adjacent the peripheral surface portion and wherein the diaphragm is deformable under sufficient pressure differen- d contact between the face and the seat, such pense a product from a container having a ressurising gas the tendency for the flow f the gas pressure is at least ncy for the flow rate to increase du decreased impedance of the flow regulator

4,754,898

MULTI-ORIFICE DISPENSING CLOSURE

William J. Britt, Greenville, and Scott A. Silvenis, Mauldin, both of S.C., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 16, 1985, Ser. No. 766,455

Int. Cl.⁴ B65D 51/18

1. A multi-orifice dispensing having a chamber with an end w

id member including a l

line for movement of the same between an open position and a closed position extending over at least that portion of the end wall with the included second orifice, said second hinge line ntioned hinge line being disposed such that d lid member is actuatable to open and close said ifice without interference with said first lid member when the latter is in the closed position but not in the open position, said second lid member including a second closure element positionable across the second said orifice to close the same in the closed position of said second lid member, each lid member including a depending flange disposed in side-by-side adjacency when both lid members are in closed positions, the flange of said first lid member including a lateral tab extension to underlie the second lid member when both lid members are in closed positions, and the flange of the second lid member having an notch at the free end thereof dimensioned for the tab extension to fit therein when both lid members are in closed positions to provide a selectively releasable abutting relation- between such that actuation of said first lid member said first closure element from said first orifice to e latter also causes said second lid member to be actuated to the open position thereof through the abutting relationship between the tab extension and the notch surface thereby

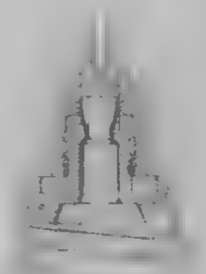
ated to open and close said first orifice ind second lid member when the latter is in an

4,754,899

TWIST CAP HAVING ADJUSTABL

he Stull, 5 Oak St., Chester, N.J

Filed Feb. 3, 1987, Se



ably mounted

e wall of the base

CONTROLLED AM

Colin A. MacKay, Austin

and Computer Technology Corporation, A

Filed Oct. 23, 1987, Ser. No. 11

Claims priority, application United Kingd

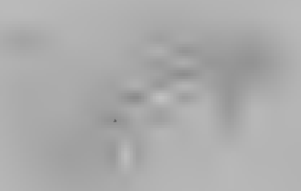
Division of Ser

continuation-in-p

abandoned. This application Dec. 4, 1986

portion of the term of this patent subseq

has been disclaimed



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al-to-audio transducer in each of said speaker

erm being adapted to

rately coupled together at its ends, said strap means

ckle means, and

tric signals fr

pposed parallel walls

n said walls being

ing

it having a frontward ta

y disposed ends

a downwardly and rearwardly extending leg depend from each of said laterally disposed ends of said rear container restraint,

nwardly extending legs being substantially the

tainer restraint and said rear container restrain being spaced from each other so as to define a generally circular open center portion;

a first base container support extending angular inwardly from the bottom end of one of said legs depending from said front container restraint and then extending angularly outwardly to the bottom end of one of said legs depending from said rear container restraint;

a second base container support extending angularly in

of said legs

it and then

m end of the other of said legs depending from said rear container restraint,

support means on said rear container restraint for connect said container caddy to the handle bars of a bicycle said support means including a T-shaped support havi

COMPOUND

REARM

en G. Fischer, 4516 E. Pleasant Valley Rd., Independe Ohio 44131, and Edward P. Fitzgerald, 10207 Deer I Brecksville, Ohio 44141

Filed Sep. 22, 1986, Ser. No. 909,674

Int. Cl.⁴ A45F 3/04

porting an asse

member having first and se

ers

aced support members each inclu an adjustable support surface selectively rotatable relative to said base member, said adjustable support surfaces generally aligned with a longitudinal axis of the base member in a first posi

and said adjustable s

relative to the longitu

eive an associated bow

base member on the l

4,754,905

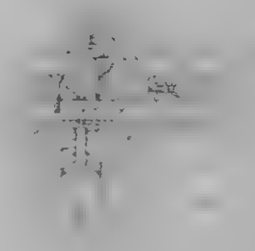
ARTICLE CARRIER

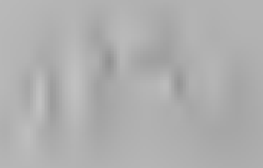
n A. Bott, 931 Lakeshore Dr., Grosse Po

ontinuation of Ser. No. 778,385, Sep 20

048. This application Jan. 14, 198

Int. Cl.⁴ B60R 9/0





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s and bend closed the staples

u end to en

the concave

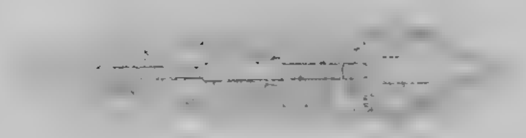
4,754,908

SS FOR PREPARING A TAPE GUIDE

Masamitsu Tanaka, No. 5-20-11, Aoto, Katsushika-ku, Tokyo; Koji Kondo, No. 4-4-1, Kobogaoka, Chikusa, Nagoya, and Mamoru Usami, c/o Sanwa Needle Bearing Co., Ltd., No. Katsushika-ku, Tokyo, all of Japan

l Apr. 21, 1986, Ser. No. 853,889

y, application Japan, Oct. 15, 1985, 60-22



or equal t

4,754,909

EXIBLE STAPLER

ms Ave., Port Hueneme, Calif.

57 Sabado Taro, Goleta, Calif.

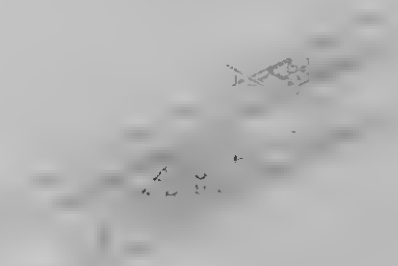
PRESS FOR ASSEMBLING A ROO

Rehn, Lahti, Finland, assignor to M

Filed Jan. 13, 1987, Ser. No. 2,776

ty, application Finland, Jan. 16, 19

Int. Cl.⁴ B27



ipporting members for p
s of the roof trestle para
ation device connected to th
one end of each of th
g at the ridge point of the
ible longitudinally along t
devices respectively
upporting members respe
riages for positioning the same at the ca
of trestle
tables on the support and supporting me
le therealong for supporti
positions parallel to the
isplaceable to each assem
roof trestle chor

4,754,911

ETHOD OF MANUFACTURING A LARGE DIAMET INTERNALLY CLAD TUBULAR PRODUCT

liam C. Turner, 85 Pinto La., Sedona, Ariz. 86336

ntinuation-in-part of Ser. No. 694,347, Jan. 24, 1985, Pat. 4,620,660. This application Oct. 20, 1986, Ser. No. 920,4

The portion of the term of this patent subsequ has been disclaimed

Carmen D. Burns, San Jose, Calif., assig conductor Corporation, Santa Clara, Cali

Continuation of Ser. No. 597,805, Apr. 5 which is a continuation of Ser. No abandoned, which is a continuation 1978, abandoned. This applicatio

EMBERS AND UNCO

id B. Espedal, Haugen

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rm suitable for one-sid
ary paper sheet having a
parallel fold lines extending

tion perpendicular to said f

BULE BIN WI
Knight, Jr., Hurst,
f America, Clayton, Mo.
Filed Nov. 13, 1987, Ser. No. 119,911
Int. Cl.⁴ B65D 5/48

ls foldably jo

bert L. Gordon, Monroe, and Roderick W. Kalberer, S
ury Mills, both of N.Y., assignors to International P
ompany, Purchase, N.Y.
Filed Jul. 29, 1986, Ser. No. 890,228
Int. Cl.⁴ B65D 5/08

luding four parallel and
nels foldably connected t
ch a respective end cl

aid end closure panels each havin
old line of each pair extending fro
he respective alternate end closure panel towa
rtion of the free edge thereof, the first alternate e
nel having a recess at the mid-portion of its fr
deformable sheet membrane attached to the blank
ning said first alternate end closure panel recess, th
fold lines in said first alternate end closure panel inters
nd alternate closure panel having a pai
ich is located on a respective side of the
free edge of the second alternate closure
panel, said pair of recesses defining a triangular abutment
gue defining a means for forming
gussets in the deformable membrane in the said first alternate

4,754,918
FLAG FOR USE ON RURAL MAI
ltrad, 1302 Dorsetshire, Pasadena, Tex.
Filed Dec. 22, 1986, Ser. No. 945,008
Int. Cl.⁴ A47G 29/12
2—35

AIR CONDITIONING APPA
Nobuo Otsuka; Hideo Igarashi, and Peter
Kamakura, Japan, assignors to M
Kaisha, Tokyo, Japan
Filed Aug. 22, 1986, Se
Claims priority, application Japan, Aug.
Sep. 11, 1985, 60-201001; Sep. 11, 1985, 6
1985, 60-208001; Sep. 18, 1985, 60-20
60-225051; Oct. 7, 1
Oct. 7, 1985, 60-22

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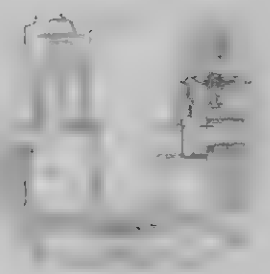
Van Fossen, b
Standard Controls,

28, 1986, Ser. No. 936,06
Cl.⁴ G05D 23/



ed for threaded coupling engagement
asing at the threaded opening therein.
s including a bore extending there-

thermostatic actuator mounted at
lapted to deflect in respo

pled to controllably a

oupled to the

interposed between said bime

4,754,921

ED RAILROAD TRUCK ROADWAY CROSSING MODULE

Harmon, Portland, Oreg., assignor to Utility Vaul
uburn, Wash.
Filed Dec. 24, 1986, Ser. No. 946,20
Int. Cl.⁴ E01B 2/

ed railroad track roadway

ed with an elevated central s

ections having
el.

(b) on each side of the base, substantially at the boundaries between the central and side sections, a plurality of longitudinally spaced, releasable rail-fixation members ar
releasably fixing a pair of rails to the
parallel relation to each other, and
fastened to the fixation
members of each row for maintaining them in predeter-

(d) the base being made of cast concr
ber comprising a connector underly

of the rail ba

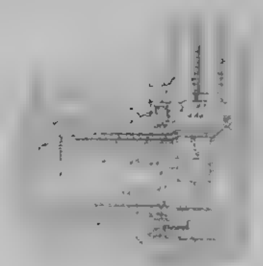
4,754,922

AIRBLAST FUEL INJECTOR TIP WITH INTEGRAL CANTILEVER SPRING FUEL METERING VALVE AND METHOD FOR REDUCING VAPOR LOCK FROM HIGH TEMPERATURE

Robert M. Halvorsen, Birmingham; Jerome R. Bradley, Sterling Heights, and Gregory F. Long, Canton, all of Mich., assignors
Ex-Cell-O Corporation, Troy, Mich.
ed Jul. 24, 1986, Ser. No. 88
Int. Cl.⁴ B05B 7/10, 7/06

U.S. Cl. 239—5

1. An airblast fuel injector having injector
forming an inner air chamber having a down



re to the annular fuel p

4,754,923

TH AUTOMATIC VALVE OPEN CONTROL MEANS

Yoshio Matusita; Takeshi Mochizuki; Yukimitu Watanabe; Ikuya Shiraishi; Katsumasa Iwasawa, all of Kanagawa, and Kazuki Terafuji, Hiroshima, all of Japan, assignors to Iwata Air Compressor Mfg. Co., Ltd., Tokyo, Japan
Filed Aug. 14, 1986, Ser. No. 896,204
Claims priority, application Japan, Aug. 22, 1985, 60-184665; Aug. 23, 1985, 60-185638

echanism provided on the pro
body of at least one of said pa

ARIABLE GEOMETRY NOZZLE

annon, 407 94th S.E., Bellevue, Wash. 98
Filed Apr. 3, 1987, Ser. No. 33,620
l.⁴ B64D 33/04, B63H 25/46, F02K 1

whe

Bow

ms priority.

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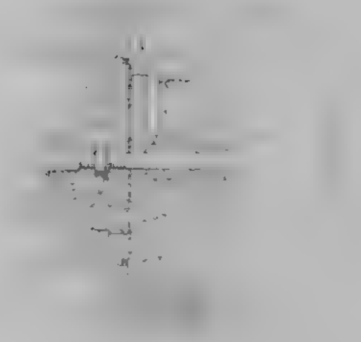
oration, Hillsdale
Filed Jan.



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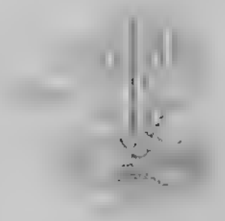
uter peripheral
ng located be-
ter peripheral surf
eripheral surfac
ffectively compe

UID CONTROL SYSTEM

nfield, and Michael J. DiMonte, Scott
l, assignors to Combustion Engineering

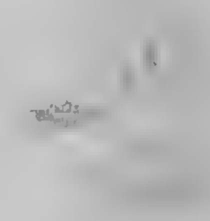


Is determined
ocess parame

4,754,932

LVERIZER INERTING AND FIR EXTINGUISHING SYSTEM

Stanley E. Kmiotek, Enfield; Mark P. Johnson, Windsor, and James D. Rogers, Somers, all of Conn., assignors to Combus-
n Engineering, Inc., Windsor, Conn.
Filed Mar. 18, 1987, Ser.
Int. Cl.⁴ B02C 15



pul-

n pulverized thi

rative for establishing an i
e within the separator body as well as for c
al from the bowl mill,
nerting inlet means con

pply means so a

means further being connected in fluid f
said backup inerting medium supply m
erative upon receiving the signal fro
flow of the bacl
let means and the
neans and therethrough to the interior of the bo
hen said primary inerting medium supply is inoper

xtinguishing subsystem operative for effectuat
tion in temperature within the interior of t

APPARATUS FOR DESTROYING DOCUMENTS SUCH AS BANKNOTES

Karl Leutbold; Herbert Maul, both of Munich; Walter Tröger, Martinsried, and Alexander Serester, Munich, all of Fed. Rep. of Germany, assignors to GAO Gesellschaft fur Automation and Organisation mbH, Fed. Rep. of Germany
Continuation of Ser. No. 694,648, Jan. 24, 1985, abandoned. Th
application May 12, 1987, Ser. No. 49,012
Claims priority, application Fed. Rep. of Germany
1984, 344470

speed sorter, i
l from a stack one
to various criteria and assigned to certain sorting classes a
result of the testing, one sorting class embracing documen
which are supplied by a conveyor system to a shredder mea
and destroyed therein, comprising a shredder means including overlapped cutter disks mounted in fixed, spaced apart relationship on parallel rotatable shafts so that the disks are spaced apart from each other, each cutter disk including periphera
crosscutting notches that are out of registration with notch
of adjacent disks,

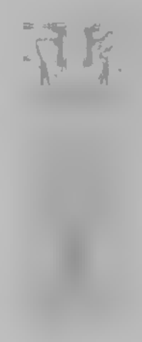
a collecting means for the document shreds disposed
stream of the shredder means in the direction
ment of the documents, and a vacuum pump ar
produce low pressure in the collecting means;

aid collecting means including an entry opening
owards the shredder means, through which openi
l through the shredder means due to the low pr
the collecting means;

lder means including a guide element arranged
ront of the shredder means in tl
f the documents, which guide

VERTICAL G

Iwao Ikebuchi, Hirakata, and
of Japan, assignors to Kubota, Ltd., Osaka, Japan
Filed Feb. 24, 1987, Ser. No. 17,685



in :
nlet means an

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r Sjundeå, Finland, assignor

Filed Apr. 10, 1987, Ser. No. 37,005

4,754,936

D DEVICE FOR TEXT

l, Barcelona, and Miguel Gabarró Mon

, Spain, assignors to Jumberca S.A. and

both of Barcelona, Spain

for textile machine

ng yarn from a yarn

to a needle of a textil

than the total perimeter of the drum

urface of the feed drum is adapte

4,754,937

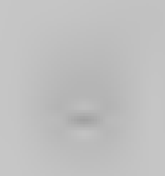
WIRE PAYOFF APPARATUS

nott, Preston, and Gilbert G. C

f Conn., assignors to Clipper M

ed Oct. 23, 1987

Int. Cl.⁴ B6



ol thereof is decreased

4,754,938

NETIC TAPE CASSET

itoh, Nagano, Japan, assignor to TDK C

Filed Oct. 1, 1986, Ser. No. 914,131

Japan, Oct

Int. Cl.⁴ G11B 23/0

late, having substantially the sa

and having front, left a

ate frame arranged between the top and th

ottom cover plates, having front, left and right side and

ear portions corresponding to those of the top and the

g an open front or

anged between the

top and the bottom cover plates at the front p

thereof, and comprising an elongated membe

front and rear surfaces and substantially planar up

to said upper and lower surfaces

of said head insertion part, first gu

n part on left and

nd guide member

perpendicularly to said upper

elongated member by said re

guide member hol wherein a coefficient

rs is smaller than that

Coburg, both of Austria, assignors to U.S. Philips

York, N.Y.

Filed Oct. 29, 1986, Ser. No. 924,64

application Austria

Int. Cl.⁴ G11B

ners, an ope

Bernhard Deter, Ottobrunn, Fed. Rep. of Ge

Messerschmitt-Bolkow-Blohm GmbH, M

Filed Aug. 20, 19

Claims priority, a

985, 3533720

U.S. Cl. 244—75 R

1. An emergency

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sources being
comprising at

France, Dec. 13, 1985.
F16L

4,754,942
SUPPORT FOR A CONTROL PANEL
Franco Berg, Isernhagen, and Jürgen Zachroi, Dillenburg, bot of Fed. Rep. of Germany, assignors to Rittal-Werk Rudolf Loh GmbH & Co. KG, Fed. Rep. of Germany
Filed Mar. 26, 1987, Ser. No. 30,944
Claims priority, application Fed. Rep
1986, 3610151
Int. Cl.⁴ F16L 3,

mounts (34) for retaining fasteners, said support plate (30 houses at least one roller mounted in a rotatable fashion (43, 4 U-profile section, said rollers (43, 47 ort plate (30) and protruding fror t plate (30), an opening (17) is pr

4,754,943
SEAT PEDESTAL
is, 53224 Marina
led Dec. 23, 198
Int. Cl.⁴ F1

d including a base member adapte nd having a raised portion spaced from a plate means for supporting a e member and supported above

4,754,944
OR ATTACHMENT
L SUPPORT BRACKET
BOXES
Klaus-Dieter Bovermann, Niederdieten, Fed. Rep. of Germany assignor to Rittal-Werk Rudolf Loh GmbH & Co. KG, Fed Rep. of Germany
Filed Jul. 9, 1986, Ser. No. 883,619
laims priority, application Fed. Rep. of Germ

itch box, said connecting brackets aligned opposite other, a contoured connecting bar (15) provided wit eiving groove (16), said contoured connecting bar said connecting brackets and g brackets in a plane parallel to

n of Ser. No. 572,700, Jan. 20, 1984, application Nov. 19, 1985, Ser. No. 7
Int. Cl.⁴ A47B

pport for box

adapted to e
between the

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A••E•I CHAIR RESTRAINT
Imce J. Constantin, 7575 E. Industrial, Baton Rouge, La. 70805
Continuation-in-part of Ser. No. 851,972, Apr. 14, 1986, Pat. No. 4,690,364. This application Jun. 3, 1987, Ser. No. 57,104
The portion of the term of this patent subsequent to Sep. 1, 2004,

at. Cl.⁴ A47B 97

4,754,947
ADAPTER
120, College Stat
ed Aug. 7, 1987, Ser. No. 83,67
Int. Cl.⁴ F16M 13/00

ds and the like e
attachment assen
l hanger assembly which allows said
ibstantially vertical position, a hanger

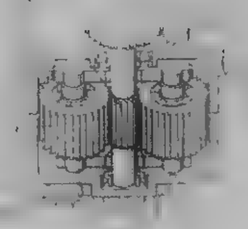
means for attaching said hanger assembly to said plate
means for attaching said fixture attachment assembly to said plate at a position laterally offset from the point of attachment of said hanger assembly to said plate in a perpendicular direction relative to the main axis of said hanger assembly, and
a plurality of position indicators on said plate located at predetermined spaced intervals with respect to an axis of said plate, each of said position indicators designating a selectable, predetermined lateral offset substantially equal to the product of the tangent of a preselected angle of ceiling incline and the perpendicular distance between a first and a second imaginary plane, each of said planes being parallel to said ceiling with said first plane intersect

selection of a specific lateral offset which effects a substantial alignment of the center of gravity of said fixture and the main axis of said hanger assembly with respect to
lled position, said specific lateral offset
e actual angle of ceiling incline of said
l the perpendicular distance between said fir
ond planes for said hanger asse

4,754,948
IANGE STABILITY DEVICE
chard E. Casciani, Ashland, Ohio, assignor to The Tappan Company, Ohio
Filed Nov. 12, 1986, Ser. No. 929,519

4,754,949
ACTUATOR FOR VALV
ikuo Fukamachi, No. 7-10, Kyomachib
Osaka, Japan
Filed Sep. 8, 1987, Ser. No
251—129.03
sive (1) fo

t said rotary shaft (4) for p
8) meshed



yo, and Yuji Yasuda, Yokosuka, all of Japan,
bushiki Kaisha Toshiba, Kawasaki, Japan
29, 1985, Ser. No. 792,593
n Japan, Oct. 30, 1984, 57-226817

Hisashi Hattori
Hirakata, Japan
Seisakusho, Toky
Filed D

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pipe, said output pipe having
tion path between said ejector

4,754,953

XYGEN IN LEACHING AND/OR
EDURES EMPLOYING CARBON

len, Colo.; Carl L. Elmore, and Phillip
hell, both of Glens Falls, N.Y., assignors to Kamyr, Inc.,
s Falls, N.Y.

n of Ser. No. 732,637, May 10, 1985, abandoned. This
Aug. 27, 1986, Ser. No. 900,687
Int. Cl.⁴ C22B 11/04

disposed in said vessel, said mechani
ng a central shaft, and said floating
ng an aperture
shaft may pass

ICE FOR INT
METAL AND
KING THE DEVI

ezcano Navarro, Blvd. Harold R. Pape KM 10.67
lova, Coah., and Gregorio Vargas Gutierrez, Jose Cle-
te Orozco #480, Fracc. San Isidro, Saltillo, Coah., both of

ntinuation-in-part of Ser. No. 823,638, Jan. 29, 1986,
doned. This application Feb. 20, 1987, Ser. No. 16,833
Int. Cl.⁴ C21C 5/48

266—220 11 C

apparatus for introducing gas into molten metal in t

d surfaces over

ng of the casing, the elements each having prin
ntrolled shot blasting of the principal faces of
vide a roughene
ranged surface
es of the elements in contacting face to
face relationship so that the randomly arranged surface discontinuities define a plurality of unoriented flow passages therebe

permit gas flow rate

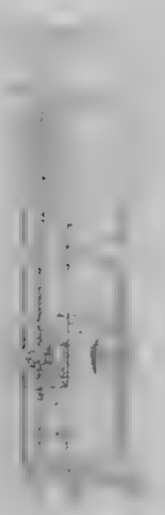
casing but to pre
when the gas flo

4,754,955

AIR CUSHION SNUBBER APPARATUS

Tsutomo Otsuka, South Holland, and Edward J. Brzezniak, Ly
ons, both of Ill., assignors to Verson Allsteel Press Company,
Chicago, Ill.

Continuation of Ser. No. 148,738, May 12, 1980, abandoned.
This application Sep. 28, 1982, Ser. No. 426,234
Int. Cl.⁴ F16F 9/02



number as the

from the member at

neans

rial within said snubbing chamber

hamber volume de
opening when the c

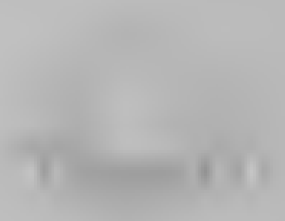
compressible materia
within the snubbing ch
to be relatively independent
within a range of pressure

4,754,956

SUPPORT FOR THE ELASTIC SUSPENSION ENGINE IN A MOTOR-CAR WITH RESPE CHASSIS OF THE SAME

rennaro Barone, Milan, and Giovanni Vanesa, S
vanni, both of Italy, assignors to S.A.G.A. - Soci
zioni Gomma Antivibranti S.p.A., Italy

Filed Aug. 1, 1986, Ser. No. 892,055
priority, application Italy, Sep. 18, 1985,
Int. Cl.⁴ F16F 13/00, 9/14



ormable elemen
l, said dampin

ell shaped element within said body a

und

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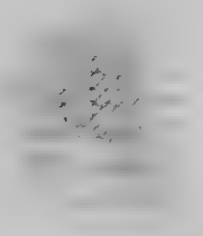
[illegible] rcuate cross-se [illegible] training lateral b [illegible]

[illegible] sible layers each having a [illegible] of layers having a smaller [illegible]

[illegible] l posi [illegible] and [illegible] nall, [illegible]



[illegible] restraining pu [illegible] ed at the free [illegible]

4,754,959

[illegible] S FOR TRANSVERS [illegible]

[illegible] f Fed. Rep. of Germany, assignors to M.A.N. Roland [illegible] maschinen Aktiengesellschaft, Augsburg, Fed. Rep. of [illegible]

[illegible] 22, 615, 614), or [illegible] in mode (b), to a common receiving station 921, 615 or 22 [illegible]

[illegible] 02, 618, 626) for providing [illegible] ted webs (1a, 1b; 603b),

first cutting and folding m [illegible] located to receive a fi [illegible] the web and folding [illegible] first transversely fol [illegible]

second cutting and fold [illegible] 622, 623) located to r [illegible] web, cutting the web and folding the cut web transver [illegible] to form a second transversely folded, cut, printed [illegible] strate (A2)

said first and said second cutting and folding means being arranged to supply the printed substrates in pairs with the respective first and second substrates (A1, A2) spaced from each other with respect to the directi [illegible] ment of the substrates,

a first transport system (17, 19, 612) positioned to receive printed substrates (A1) from the first cutting and folding [illegible]

a second transport system (17, 18, 18', 612) p [illegible] receive printed substrates (A2) from said se [illegible]

[illegible] selected mode [illegible]

[illegible] and in alignm [illegible]

4,754,960

[illegible] OPIER DOCUMENT WO [illegible] AND WEB GUID [illegible]

George [illegible] ester, N.Y., [illegible] tion. [illegible] 0, 1987, Ser. No. 31,65 [illegible]

[illegible] ud document handling system of said copier, [illegible] surface means also defining a computer forms [illegible]

[illegible] epositioning and maintaining said compu [illegible] king tray means into an operating posit [illegible]

[illegible] itrally below said compu [illegible] said first surface means, [illegible] pporting a fan-folded stack of said comput [illegible] ing fed through said computer forms v [illegible]

[illegible] Urawa, both of Japan, assignors to Daima Seiko [illegible] hikurume, Japan

Filed Mar. 12, 1987, Ser. No. 25,265

Claims priority, application Japan, M [illegible]

[illegible] tic Products Inc., Toledo, Ohio [illegible]

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4,754,965

RTING BLOCK FOR RUNNERS

e, 2591 Robindale, Akron, Ohio 44

d Apr. 25, 1986, Ser. No. 856,589

Int. Cl.⁴ A63K 3/02

g the runner acro

e finish line

4,754,966

RMING OBJECTS IN

PICTURE

Michel Bottian, Maurepas, France, assignor t

Corp., New York, N.Y.

Continuation of Ser. No. 662,864, Oct. 19, 1984, abandoned

This application Sep. 16, 1986, Ser. No. 909,065

Claims priority, application France, Oct. 19, 1983, 83 1663

al reading the

4,754,967

L DEVICE FOR AN A

HANDLING DEVICE

Stadingeplan 18, S-16363 Spanga, and Hans

arnvagsgatan 3, S-57100 Nassjo, both of S

l. 22, 1986, Ser. No. 868,069

l.⁴ A63D 5/08

cted with said pin

ntrol system,

nge in said pr

STRINGING PA

ischer, Kickenstrasse 88, D-4156 W

tinuation of Ser. No. 561,595, filed a

v. 30, 1983, published as WO83

This application Mar. 31, 19

Claims priority, application Fed. Rep

1982, 3211738; Jul. 27, 1982, 8221340

The portion of the term of this patent subs

pl

ET OF GOLF

Matsudo, Japa

kyo, Japan

Filed Sep. 26, 1986, Se

Claims priority, application Japan

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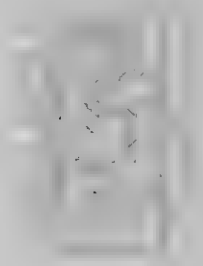
ishi, Matsudo, Japan, as
kyo, Japan
d Dec. 16, 1986, Ser. N

4,754,971
GOLF CLUB SET
i Kobayashi, Matsudo, Japan, assignor to Marum
Ltd., Tokyo, Japan
Filed Jul. 21, 1986, Ser. No. 887,474
s priority, application J
Int. Cl.⁴ A63B

cordance with a gradual decre
gradual increase of the club len

MULTI-LEVEL ROTARY MAZE
Boris Boskovic, 2102 Bannockburn, Inverness, Ill 60067
Filed Oct. 6, 1986, Ser. No. 915,983
Int. Cl.⁴ A63B 67/14, A63F 9/08



multilevel maze, comprising

tion of said apertures comprising pathway aper-
defining a normally disjointed path extending
t the maze,
portion of said apertures comprising dummy
and defining at least one normally disjointed
te extending through only part of the maze,
through said apertures, and
ing the apertures of adjacent

FLOOR HOCKEY PUCK
1884 Bannatyne Ave. W., Winni
a R2R 0B3
Filed May 12, 1986, Ser. No. 861,7
Int. Cl.⁴ A63B 67/00
U.S. Cl. 273—128 R 3 Claims

1. A floor hockey puck comprising a disc-shaped body
g planar parallel circular end faces and a cylindrical
eral wall, the end faces having a diameter and the pe
l wall having a height, said body being formed of strips
st and a second flexible strip material connected to
by stitching in parallel overlying relationship to form a
aving a width equal to the wall height, the strip being
with each spiral turn in contact with and at-
adjacent spiral turn to a diameter equal to said

GOLF
d Jan. 30, 1987, Ser. No. 8,887
pplication Japan, Jan. 31, 198

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of removable and interchangeable threaded

C. 1986, Ser. No. 898,15

aming purposes

m the main shaft
y handle being
r to the plane in w
y handle and the main handle
rably from 5° to 15° therebe

Vasoen, 9840 W. 35th Ave., Wheat Ridge, Colo. 80035
Filed Oct. 20, 1986, Ser. No. 920,
Int. Cl.⁴ A63F 9/20
U.S. Cl. 273—291 5 Claims

method of playing a pattern forming game comprising
eps of providing a plurality of differently colored poly
ly-shaped chips, assigning each of several players a spe

atures have been assign

determine the wi

4,754,980

IUS UTILIZING A BALL CONTROLLED ELECTRICAL SWITCH

Abraham Torgow, 25 Concord Cir., Howell, N.J. 07731
Continuation-in-part of Ser. No. 621,513, Jun. 18, 1984, Pat. No. 4,595,202, which is a continuation-in-part of Ser. No. 222,067, Jan. 2, 1981, Pat. No. 4,477,078, which is a continuation-in-part of Ser. No. 23,730, Mar. 26, 1979, Pat. No. 4,264,073. This application May 6, 1986, Ser. No. 860,238
G09B 19/02

housing
(ii) At least one ball support member, said ball support

pening said current for

4,754,981

UNITIZED FACE SEALING DEVICE

l P. H. Burns, Windsor, England, assign
Burgess Engineering Limited, United Kingdom
Filed Nov. 14, 1986, Ser. No. 930,458

d casing to apply an axial
es. means for sealing sa

ated by said casing

4,754,982

EEL LAMINATE GASKE

unekazu Udagawa, Ichikawa, and Susumu Inamura, Tokyo, both of Japan, assignors to Ishikawa Gasket Co., Ltd., Tokyo, Japan
Filed Dec. 2, 1986, Ser. No. 936,872
priority, application Japan, Sep. 16

l laminate gasket for sealing engine parts having

assignor to MTU Motoren- und Turbi
GmbH, Munich, Fed. Rep. of Germany
Filed Dec. 5, 1986, Ser. No. 9
Claims priority, application Fed. Rep. of
85 3543

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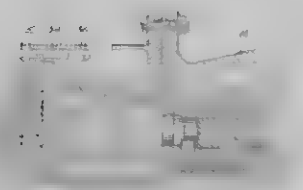
4,754,984

AL-RING SHAFT SEAL

gouna, Calif., assignor to The United States of
resented by the Secretary of the Navy, Wash-



between said carrier cylindr
flange, whereby small rota
e and

GGAGE CARRIER

n Bridge Ave., Bronx, N
Broadway, RM 3815, N

[illegible]
ns fo
rame member whereby said
n an operative position to an

ht frame member being an inverted generally
ibular rod having a pair of parallel side arms

having a pair
end at one end
offset connecting end section, an axle rod extending through said side sections and pivotably mounted on said side arms of said frame member
(i) each of said wheel assemblie
a hooked portion and a whe
said bracket pivotable on one of said side
frame member in which said free end of eacl
sections of said base support member can eng

keep said wheel assembly in said
eing an elongated spring extending
betw
whe
posi
fron

4,754,986

LOAD DISTRIBUTOR WITH ARTICULATED GROUND SUPPORT

Kenneth J. Schmidt, Springfield, Oreg., assignor to General Trailer Co., Springfield, Oreg.

Division of Ser. No. 6/809,241, Dec. 16, 1985, Pat. No 4,705,288. This application Sep. 21, 1987, Ser No. 98,85
Int. Cl.⁴ B62D *13/02*
280—81 A

bra
tran

orting a portion of the v

4,754,987

WHEELCHAIR

Williams, 13564 Trinity, Detroit
vision of Ser. No. 457,328, Jan. 12, 1983, Pat. No
This application Jun. 9, 1986, Ser. No. 872
Int. Cl.⁴ B60J 7/16

transparent cover removably
support assembly and intercor

flange seat

n, Austria, assignor to

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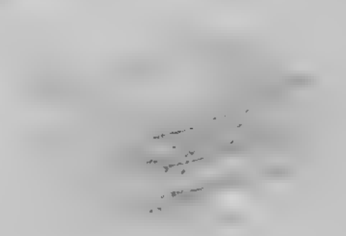
belt of said bod
d upper belt of s
nted, said bending beam
ity in said body runner
al longitudinal center
ported at its two ends
ngitudinal end walls of
ins extending approxi

runner for app
id decreasing
emote from a s
said force ap
d upper belt of

4,754,990
DING ASSEMB
BRAKING SYSTEM
n P. J. Salomon, Annecy, France, assignor to Salomon
Annecy, France

4,754,991
IETHOD AND BUFFER APP
EVENTING CORROSION IN DYNAMIC LO
BEARING ASSEMBLY
O. Jordan, 2619 North Scottsdale Rd., Scottsdal

d Sep. 3, 1986, Ser. No. 903,258
Int. Cl.⁴ B62D 17/00



adjustable load bearing assembly in a veh
(a) spindle means for rotatably carrying a wh
(b) a first load bearing member having a plate p

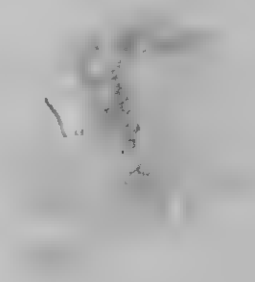
spanning the distance b

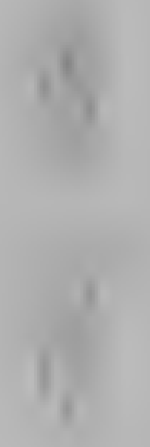
load bearing member and
said radius arm and said first

nt from points

least a portion of said cylindrical surface of said eccen
tric aperture in said buffer means to be forced against said elongate cylindrical member to produce frictional forces which resist rotation of said buffer means in said circular opening, and
(f) sai

NDEPENDENT REAR SUS
MOTOR VEHICLE
obuyoshi Asanuma, Saitama, Japan, assignor t
Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed May 29, 1986, Ser. No. 868,808
laims priority, application Japan, Jun. 3, 1985, 60-120248
Int. Cl.⁴ B60G 3/00





g substantially upward

l pivotally mounted o
e end adapted to be piv
for pivotal movement

ntral axis, the extens

4,754,993
HARNESS CONNECT
Canton, Ohio, assignor to Hand
oup, Inc., Dover, Ohio
ct. 28, 1986, Ser. No. 924,24

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4,754,99?

WALLED CONNECTING PIPE FOR PIPELI
AND COUPLING STRUCTURE FOR SAME

takahashi, Ageoshi; Isamu Hattori, Hatogayashi, and
umi, Tonemachi, all of Japan, assignors to Sankyo

the partition bears without
protuberance disposed on a
to the face contacted by the
protuberance being unsym-
rcumferential ring seal dis

SCUBA TANK HOLDER AND CARRIER

rank C. Tecca, 4944 Roja, and Jonathan N. Weeks, 38
Ramon Dr., #223, both of Oceanside, Calif. 92056
Filed Oct. 2
Int. Cl.

gated curved base member for extending .

having a length for extending together
simultaneous grasping in one hand

4,754,997

GLIDER DOORS

Derek Thompson-Ashworth, Bakewell, England, assigno
Stone International PLC, West Sussex, England
Filed Jun. 15, 1987, Ser. No. 61,49?

upport to move that edge of the door initially
rt away from the latter in a direction gener
endicular to the direction of the track and to move the
edge of the door towards the support, so th
in open position adjacent the support a
lar to its closed position,
nt wherein a substantially rectangular ape
l at the lower corner of the door adjacent th

a size to provid
its open posit

4,754,998

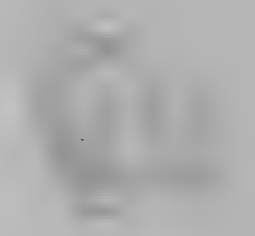
CATAMARAN-CAMPER-TRAILER

luerrne, P.O. Box 10, Wellington, K
Filed Feb. 2, 1987, Ser. No. 9,69?

ht first side wal
is, and an uprig
camper floor n
tally secured tc

l to the camper base

Compa



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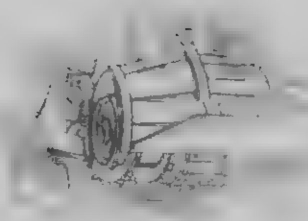
at cushion frame and protrud
acing member to engage said
stener pin, said second cross
ageway opening at one end
stener means engaged in said



for planing a road, comprising a main
a prime mover and drive train, for
includes a superstruc
ving a near end and a

supported on said shaft,
a digging head supported by said shaft, spaced endless chains
connected about the sprockets at the near and far ends of
tooth mount means supported by said
h form an endless central digging and

sed ends, said digging head in
rotation on opposed marginal e
rmed on said drums, digging
rum flights and on the tooth mount
g a road, the flights on said drums are
excavated material to move towards
digging member; means by which said
y the sprockets at the far end of the

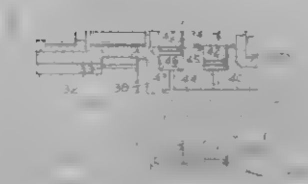
eld means attached to the far end
id shield means extends across the
d and circumferentially around part of the circumfer
e digging head in spaced relationship to said
escribes a segment of a cylinder; said shield
les a fixed segment from which there is sup-
t shoe
gaging

if the digging
ing head can b

ffect
means and thereby
ground and support
spective the ground

4,755,002
MINING MACHINE

George A. Parrott, Sandal, England, assignor to Dosco O
Engineering Ltd., Nottinghamshire, England
Filed Nov. 13, 1986, Ser. No. 930,65



ered positional adjustment with
rotary cutting head provided on
transmission to drive said rotary c
ted, coaxially with said boom longitudinal axis form
f said transmission, a plurality of nozzles provided on
said cutting head each to emit a water spray or jet, conveying
conduits to supply water to said nozzles, said boom being of a
two-part construction comprising an inner part that is non
rotatable about said boom longitudinal axis, that is supported
from said one end on said chassis, and bearing means carried
towards its other end for rotatably supporting an outer part

supported on said outer boom part and mounted rotatably with
respect to said outer boom part
located at least partially within
vided with at least one radially extending
closed inner end and an open outer end, a piston housed at least
partially and in a reciprocable manner within said cylinder(s)
olume, pressure-generating chamber defined
ly inner end of said piston and a closed, inner
cylinder, a bearing ring carried by said rotatable part
ally with respect to said boom longitudinal axis, and
dially outer end of each piston being in direct or

ing effect

4,755,003
TTER BIT ASSEMBLY WITH R
RETAINER

Cletis P. Pinkerton, 7785 Mountain Ash Dr., and Robert I
Morris, 1329 Riverside Dr., both of Mentor, Ohio 44060
Filed Dec. 17, 1986, Ser. No. 942,688
Int. Cl.⁴ E21C 25/10

ing machine
being adapted to be connected to a wheel means of a
g machine, said mounting block member having an
adapted to receive a cutter bit member therein, and

being adapted for axial sliding movement within the bore of
said mounting block member, said shank portion having an
integral retaining ring portion at the terminal end thereof, said
polymeric retainer member engageably coacting with said
retaining ring portion to prevent axial shifting movement of
ember in the installed position thereof, said
r member is of a unitary, generally hollow
tion having internal protuberances adapted
g coacting engagement with said retaine
protuberance means extend radially inwar
l plane of said housing adapted for contacting
gagement with the confronting surface of said retainer
ber, and said protuberance means include a plurality
umferentially spaced gripping elements that extend
wardly in a direction toward the confronting surface
iner ring member having a radial dimension greater

4,755,004
ROTARY ROCKSAW DEVICE

Palmquist, 2914 Wroxton, and Jesse W. I
r, both of San Antonio, Tex. 78217
Filed Nov. 14, 1986, Ser. No. 930,513

ck capable of being m
of a rocksaw comprising
e which bears against the conv
rocksaw when said block is mo

t at an angle t
ch that the b

ung Tsai, P.O. B
Filed Apr. 29

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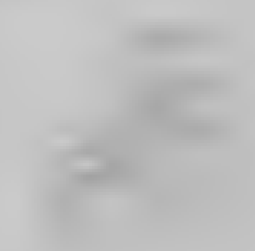
4470 Gilbert Ave., Corona, Calif. 91719, and deceased, late of Oklahoma City, Okla. (by representative)
Filed Sep. 25, 1986, Ser. No. 911,515
Int. Cl.⁴ B60B 33/0



ns carried by said
hub opening

ical body extending
parallel arrangement

ICE INCLUDING
RECIPROCATING

pitas, Calif. 95035
49,154

1 Claim

$(13_1,13_2)$ of the device (5) and an outlet port $(18_1,18_2)$,
l to rear (R) and front (F) brakes of the vehicle re-
nd adapted in a second rearward position to isolate
$(13_1,13_2)$ from fluid communication with the
$12_1,12_2)$, each piston $(9_1,9_2)$ also including

een one end of said respective piston
$8_1,18_2)$ of a respective end cap $(7_1,7_2)$

end cap $(7_1,7_2)$ and a recess of the other end of the respective said piston $(9_1,9_2)$, wherein rotation of said cam (2) causes

4,755,008

BRAKING SYSTEM WITH POWER BRAKE, BRAKING E PROPORTIONING, ANTI-SKID, AND TRACTION CONTROL FUNCTIONS

Yuzo Imoto, Kariya; Haruhiko Uno, Anjou; Toshihiro Takei, Okazaki; Hideo Wakata, Nagoya, and Yoshiyuki Hattori, Toyoake, all of Japan, assignors to Nippondens Kariya, Japan

Filed Dec. 19, 1986, Ser. No. 943,771

Claims priority, application Japan, Dec. 25, 1985, 60-295644; Dec. 25, 1985, 60-295645; Dec. 26, 1985, 60-295545; Jan. 24, 1986, 61-14511; Aug. 25, 1986, 61-198506; Sep. 5, 198

Cl.⁴ B60T 8/04

stem for providing an anti-skid function and
roportioning function for a wheeled vehicle,

pressure for retarding the rotation of
- a master cylinder actuated by a vehicle
ing a controlled fluid pressure;
- a source of a predetermined fluid pressure higher than said controlled fluid pressure,
- a reservoir for a brake fluid, and,
- a pressure modulator in fluid communication with said wheel cylinder, said master cylinder, said source and said reservoir for controlling fluid pressure communicated said wheel cylinder,

said wheel cylinder and said reservoir so that a modulated fluid pressure which is a multiple of said controlled fluid pressure is communicated to said wheel cylinder during normal braking operation,

aid modulator also comprising electronically controllable first biasing means responsive to electric control signals for biasing said valve means in such a manner that said modulated fluid pressure communicated to the wheel cylinder is reduced during anti-skid and braking force
ig operations of the braking system

4,755,009

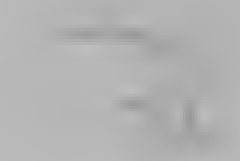
ORK STATION APPARATUS FOR WORD PROCESSING EQUIPMENT

acy J. Price, Golden; Mario B. Accummanno, Denver; John T. Molk, Englewood, and Laurence G. Ball, Thornton, all of Colo., assignors to Engineered Data Products, Inc., Broomfield, Colo.

Filed Apr. 5, 1985, Ser. No. 720,068

Int. Cl.⁴ A47B 21/00

20 Claims



transparent portion, said upper generally flat top p
means also providing support means for work prod
materials,
- a pair of laterally spaced pedestal means for supporting said top panel means and defining a work space therebetween

ort stand means beneath said cent
of said upper flat top panel mea
supporting a d
tion whereat
said central t
side drawer means mo
s for receiving and sup

on, and Paul S. Gartland, bot
ssignors to Haworth, Inc., Holland, Mi
Continuation of S
This appl

one side thereof in cant
means defining thereon a
surface adapted to support
attached to said panel adj
jecting outwardly therefrom in a cantilevered
cabinet structure being spaced upwardly above
surface means, the improvement wherein said cab
omprises,
- a rigid cabinet frame formed by substantially p walls joined together by substantially paral bottom walls, the bottom wall defining a bott
pper and intermediate shelves disposed in vertic relationship to one another and in generally p vertically spaced relationship betwee tom walls, said upper shelf being h supported on said cabinet frame for m

eans movably attached to said
g off at least a part of the front
l door means
wherein the d

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call,
elf so
ments
tively
helves,
shelves having paper
ng vertically there
eof
n said upper shelf a

and intermediate shelves t
of

4,755,011

OR RECEIVING CURRENCY BILLS

n, Salzkotten, and Hubert Rittmeister, Salz-
both of Fed. Rep. of Germany, assignors to

fining a plurality of substan-
icles, said receptacles being
rallel relationship with the

t substantially overlying the
eptacles and in side-by-side parallel
ormally prevent access to said recep

elements to transfer
substantially equal to

f releasable union means interlocking each plate
thin an adjacent plate element when said plate

4,755,012

RAY ABSORPTION FILTER

Kiyoteru Kojima, Kobe, Japan, assignor to Sumito
Company, Limited, Osaka, Japan

Filed May 30, 1986, Ser. No. 868,684

Claims priority, application Japan, Jun. 5, 1985, 60-121

Int. Cl.⁴ G02B 5/22; C09K 3/00

U.S. Cl. 350—1.1 6 Cl

otion filter compr
tion of a ray at lea
y the following f

A1, A2, A3 and A4 ar
naphthyl group unsubs

substituted with at least

4,755,013

NG OPTICAL SYSTEM OF
NER USING AN ELECTRO
L LIGHT MODULATOR

Michitaka Setani, Kawasaki, Japan, assignor to Canon Ka
shiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 820,750, Jan. 22, 1986, abandoned. Th
application Oct. 29, 1987, Ser. No. 115,564

Claims priority, application Japan, Jan. 23, 1985, 60-009

cluding an array of elements arranged in a main scan direction and each capable of deflecting an incident light beam from said light source through said irradiating optical system in at least two directions in accordance with an input signal, each of said elements making image information by a change-over of a direction of deflection of each of said elements in accordance with the input signal; and

a projection optical system for projecting only a signal input of the image information which is deflected in at least one direction of said at least two directions, the image of said light source being set so as to be formed on an entrance pupil of said projection optical system at a m
in the vicinity of one-to-one

4,755,014

PTICAL WAVEGUIDE INTER
LENS

Harold M. Stoll, Rancho Palos Verdes, and Richard L. Davis, Redondo Beach, both of Calif., assignors to Northrop Corpo-
, Hawthorne, Calif.

Filed Jun. 20, 1986, Ser. No. 876,95

Int. Cl.⁴ G02B 6/10

waveguide interf

and fourth portions, said p
third and fourth indexes of

constituting the bulk of the su
e second, third and fourth porti

rst boundary surfa
uide interface,

DEVICE OF SEMICONDUCTOR LASER AND
WAVEGUIDE

Tomoaki Uno, Hirakata, and Mototsugu Ogura, T
of Japan, assignors to Matsushita Elec
Ltd., Osaka, Japan

Filed Jul. 11, 1986, Ser. No. 8

Claims priority, application Japan, Jul. 12, 198

Int. Cl.⁴ G02B 6/

U.S. Cl. 350—96.12

1. A m
conductor

and Telegraph Company
Hill, N.J.

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R OPTICS
SING ELEMENT
NG ABUTTING FLAT SURFACES AN
HOD OF FABRICATING SAME
ny, Woodside, Calif., assignor to Kaptron, Inc

1984, Ser. No. 676,127

ent being formed of a material that is

cludes a con
d second flat
is a self-con
n said second

l said concave element being
nterface with said first and

ler modules.
cal segment
ature

l from one another, co
having (a) a first, flat surface
nd surface which in-
cond plane parallel to
urality of convex spherical
centers of curvature lying in
first array therein.

he respective

carrier elements, so aligned.
rtions thereof to provide a

4,755,018
CONNECTOR FOR OPTICAL FIBERS
Jean-Paul Heng, Lyon; Alain Humbert-Labeaumaz, Bron, and Marcel Jussene, Villeurbanne, all of France, assignors to Ce Alsthom, Levallois-Perret, France
Filed Jan. 23, 1987, Ser. No. 6,202
priority, application France, Jan. 23, 1986, 86 00956
Int. Cl.⁴ G02B 6/38
50—96.21 9 Claims

h other, thereby en
into the tube to be

said rib being
locking ring abo
the rib relative

4,755,019
OPTICAL FIBER COUPLING
Wolfram Peschko, Dietzenbach, Fed. Rep. of Germany, and Hans Schläfli, Buren, Switzerland, assignors to W. C. Heraeus GmbH, Hanau, Fed. Rep. of Germany
Filed Aug. 6, 1987, Ser. No. 83,263
Claims priority, application Fed. Rep. of Germ
1986, 36

cated within th
g synthetic mater

ement (2,2') located in said chann
accordance with the invention
ements (5,7) are formed with facing end surf
uch are in engagement with each other essentia
oughout the entire area, and retained in said sleeve (4

ent (5) being formed with a
remote from the entrance
ement, which polished surface extends at righ
s to the axis (8) of the channel or duct (9)
n the exit or coupling plug element (5) is posi

distance (17)

4,755,020
GAS-BLOCKED OPTICAL FIBER CABLE UNIT
ank R. Willis, South Holland, and John D. Meyer, Western Springs, both of Ill., assignors to Andrew Corporation, Orland Park, Ill
ntinuation of Ser. No. 550,021, Nov. 8, 1983. This application Jul. 23, 1987, Ser. No. 77,025
Cl.⁴ G02B 6/44; H01B 7/02; B01J 13/00 H0

A gas-blocked optical fiber cable unit comprising an elongated tubular jacket, an elongated optical fiber telescoped int and spaced inwardly from said jacket whereby the between said jacket and said fiber defines an annul through which pressurized gas may flow, and a filler

xture which is:
weight of a triorganosiloxy end block

that a dispersity index has a value great

, Ill., assign

Continuation-in-par , 404,283, Au
4,669,814, which is
Feb. 28, 1983, Pat. N

02B 6/10 G01B 5/02 H

wave throug
field of the

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4,755,022

mo Kuwaki; Shigeyuki Seikai; Naoshi
and Chihaya Tanaka, Katsuta, all of
ippon Telegraph and Telephone Corpora-

led Aug. 29, 1986, Ser. No. 901,619
ty, application Japan, Sep. 2, 1985 60-1

tractive

isposed on an outer side of said center core, said
having a radius a2 and a maximum refractive
than the maxi
re, and
isposed on an outer side of said core
e index n2;
e indices of said center core and said side

were determined

μm wavelength region, where c is the ve
vacuum, λ is the wavelength of light,
ivenumber and β is the propagation con

4,755,023

HEADGEAR MOUNTED DISPLAY VISOR

Charles D. Evans, Palo Alto; Andrew T. Tirums, Santa Clara, and Eric W. Larkin, Union City, all of Calif., assignors to Kaiser Aerospace and Electronics Corporation, Oakland

r mounted displa
l to be worn by a person.
nage
rmed from substantially transparent p
r mounting on said headgear and having an inner con
ve and an outer convex surface, and, with reference to
orthogonal, right-handed xyz Cartesian coordinate
tem of spatial reference having its origin located or
concave surface and its z-axis parallel to the line
f the person wearing said headgear, said inner
surface being in cross-section in the x-axis of
ymmetrical about both the origin and the y z

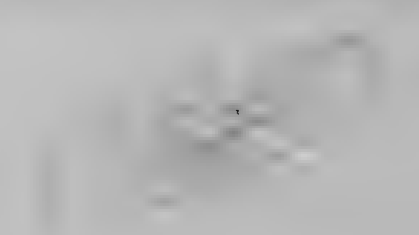
ary of said visor,
and having a cross-section of the visor in the y-axis of r
ence having a second circular segment, one end of w
upper boundary of said vis
l to one end of a third c
e end connected to one e
nt whose opposite end f

4,755,024

REARVIEW MIRROR

Paul A. Fres, 2 Ridelle Avenue, Suite 508, To
Canado M6B 1H4
Filed Oct. 29, 1986, Ser. No. 924
Int. Cl.⁴ G02B 7/18
l. 350—278 11 Claims

arview mirror housing comprising
g having a front end and a back end, a mirror
seat at the front end for retaining a mirror in a
d position relative to the casing.
a bendable wall having buckle panel means formed
erein which is at a central portion of the back end of said
using, said bendable wall free to buckle with respect to
e remainder of the back end between first and second
able positions relative to the mirror mounting seat.
c) mounting means for mounting said housing on a mir
mounting fixture, said mounting means being located



4,755,025

APPARATUS AND METHOD OF PRELOA VIBRATION-DAMPING BELLOWS

Ronald W. Cutburth, Tracy, Calif., assignor to T
States Department of Energy, Washington, D.C.
Filed Sep. 26, 1986, Ser. No. 911,846
Int. Cl.⁴ G02B 7/22

isolated optical system comprisi

t least first and

cal beam control means within said chamber
olling the path of an optical beam within said l

connecting said first and second light tubes to said ch
ber, said bellows each having an axis generally parall
each light tube,
e) third vibration isolation bellows inc
support means and said chamber.

length of each of said first, second and thi
offsetting vacuum-generated loads in said l

, assignors to NEC Corporation, Japa
Filed Jun. 26, 1986, Ser. No. 879
priority, application Japan, Jun. 27
G02B 1/09; G04B 15/4

RADIATION

tz P. Schafer, Gottingen-Nikolausberg, Fed
many, assignor to Max-Planck-Gesellschaft z
er Wissenschaften e.v., G
Filed Jun. 30
priority, appli

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4,755,028

NS WITH AN ASPHER
FOR LENS ELEMENT
nnati, Ohio, assignor to U
Cincinnati, Ohio
14, 1986, Ser. N
G02B 3/00, 3

4,755,029

UTIVE FOR AN ENDOSCOPE
Tokyo, Japan, assignor to Olympus Optical
Japan

pe comprising a GRIN lens
s arranged as a planar surface

resented by reference
e fulfilling the condi

4,755,030

R FACSIMILE OR LASER PRINTER
Araki, Yokohama; Koichi Kawata, Tama, and Yukio
ato, Yokohama, all of Japan, assignors to Matsushita
r Industrial Co., Ltd., Osaka, Japan
led Nov. 6, 1986, Ser. No. 927,452
ty, application Japan, Nov. 8, 1985, 60-251374;
162305

light beam,

wherein said first to fifth lenses satisfy the foll

(wherein, r_2, r_3, and r_5 respectively denote radii
of a surface on the emission side of the first len

fifth lenses, d_4, d_6 and d_8 respec

4,755,031

rian, 8531 Fensmuir St., San Diego, Calif.
hael Marcario, 11278 E. Meadow Glen Way,
alif. 92025
Filed Jul. 20, 1987, Ser. No. 7
Int. Cl.⁴ G02B 23/16
—588 10 Claims

defining an interior volume with at least one access port an reflective optical surfaces disposed therein, comprising

a desiccant holding means for confining a predetermined volume of desiccant in a fixed volume with a predetermined amount of access to air within said optical apparatus; and

t means for removably supporting said desiccant g means within said interior volume of said optical urfaces, said for inser-

4,755,032

MASKING OF LIGHT VALVE SPILL LIGHT
max T. True, Camillus, N.Y., assignor to General Electric
ompany, Philadelphia, Pa.
Filed Aug. 26, 1986, Ser. No. 900,641
Int. Cl.⁴ G02B 27/42, 27/38; G03B 21/14, H04N 9/31
U.S. Cl. 350—361 7 Claims

1. In a light valve of the Schlieren dark field type having formable light modulating control layer closely spaced fro an output window, an electron gun and deflection assembl generating and scanning an electron beam onto said d able light modulating control layer in a raster to de surface of said layer, and a source of light for projecting through an area of the raster scanned onto said de light modulating control layer, the improvement comprising mask formed on said output window in optical alignment with and having dimensions related to said raster, said mask having edges formed with a variable density from transparent to opaque over a space sufficient to contain diffracted light within guard band" of the Schlieren dark field optics.

VEHICLE
Peter J. Whitehead, Emsworth, and Ian Bod
both of England, assignors to Britax Wingard
ester, England
Filed Jun. 17, 1987, Ser. No. 63,2
U.S. Cl. 35

1. An exterior rearview mirror for a moto base member, a hollow part-spherical form men hous ing in the concave form a ball-and-sock member, an arm ha nd a

the
ing
abo

ELECTROSTA
VALVE OF TH
ard E. Towlson
lectric Company
Filed A

ro
co
fluid conta
reservoir an
dow and a

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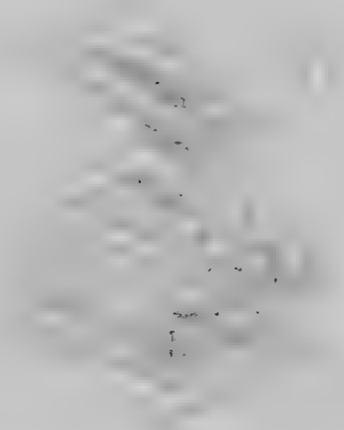
positioned adjacent said major
id wedge portion, said wedge

4,755,035

PLAY ASSEMBLY FOR LCD'S

ish, Wheeling; Michael L. Shababy, Stone Park,
ikita, Chicago, all of Ill., assignors to Motorola,

036, Feb. 25, 1986. Div



isplay assembly
ng a general pla
anar top and bo
ely providing a d
device is viewed from above said

and bottom surfaces, said carrier top
within which said LCD
carrier recessed portion
CD device and thereby later-
g said LCD device with respect to said carrier
is coupled to and joining together said LCD
said carrier, said retainer means having extend-
h contact peripheral portions of said
face and bias said LCD device against

ally planar top surface
surface recessed portio
contact with said LCD planar bottom
e shaped portion having a substantially
ice inclined with respect to said wedge-
wedge shaped
enerally verti

4,755,036

APPARATUS FOR DEFLECTING LIGHT BEAM

Makoto Suzuki, and Kazunari Taki, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Feb. 4, 1986, Ser. No. 825,994

Claims priority, application Japan, Feb. 7, 1985, 60-22467; Feb. 7, 1985, 60-22468; Feb. 7, 1985, 60-22469

Int. Cl.⁴ G02B 6/1

U.S. Cl. 350—96.13

r single substrate having a waveguide formed on one of
opposite surfaces thereof, said waveguide having an
l guiding the light bea
ce,

a condenser portion provided in said waveg
densing a radiation of the light beam f
source, into parallel rays,

a deflector portion provided in said waveguide for deflecting the parallel rays, over said predetermined angular range

said deflector portion; and

control means for controlling an operation of said deflector portion so as to deflect said parallel rays from said condenser portion as a function of time, over said predetermined angular range, and for applying convergence voltages to said convergence electrodes, said convergence voltages being varied as a function of time, depending upon an angle of deflection of said parallel rays by said deflector portion, to adjust a focal le
ing portion according to said angl
parallel rays by said deflector port
flected parallel rays are converged on a
object irrespective of said angle of deflect

FIBER OPTIC COUPLER

Larvey C. Bjornlie, Pacific Palisades, and Timoth
Santa Ana, both of Calif., assignors to McDonn
Corporation, Long Beach, Calif.

Filed Apr. 13, 1987, Ser. No. 37,462

Int. Cl.⁴ G02

hod of producing a fiber

tions of the wa
intimate cont

heating the fiber on
along the longitu
outer cladding materi

ally forming a reduced cylindrical constant diamete
oupling region at the midsection of the fused wave

VSTER ANGLE
w York, N.Y., assign
Nutley, N.J.
Sep. 30, 1986, Se
t. Cl.⁴ G02F 1

l material and c
mponents, for c
ation thereof whe
ected to an ou

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4,755,041

OWER MEASURING APPARATUS

asuyuki Ishikawa, Yokohama; Takashi Masuda, Kawasaki, and Toshio Sakane, Sagamihara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 17, 1984, Ser. No. 682,319

Claims priority, application Japan, Dec. 30, 1983, 58-246577

Int. Cl.⁴ A61B 3/10

4 Claims

ye refractive power measuring apparatus having for projecting a predetermined index image onto the [illegible] beam of said index [illegible] us, with respect to a [illegible] ive power of th [illegible]

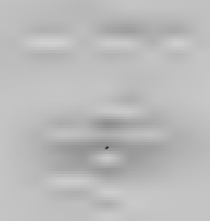
f the fixation

CE FOR A TEMPLE OF A SPECTACLE FRAME

Chesa Paschura, CH-7500 St. Moritz-Switzerland

Filed Jan. 27, 1987, Ser. No. 6,801

Fed. Rep. of Ger



nd piece for a temple of a spectacle frame

spect to the first segment and intended to rest against the head and/or behind the ear, and a connecting segment extending from the rearward end of the first segment to the contact segment and connected to the contact segment at or below the vertical midpoint of the contact segment; a low-resistance hinge interconnecting the connecting segment and the contact segment, and an elastic spring element engaging the upper end of the contact segment and the first segment and biasing said upper end forwardly with respect to said first segment

4,755,043

PORTABLE SCANNING DIGITAL PUPILLOMETER AND METHOD OF USE THEREOF

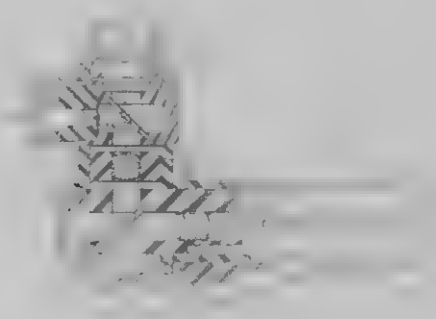
lbert P. Carter, Wilmington, Del., assignor to Somec, In Wilmington, Del.

Continuation-in-part of Ser. No. 701,994, Feb. 15, 1985, abandoned. This application Nov. 14, 1985, Ser. No. 797,769

Int. Cl.⁴ A61B 3/10

S. Cl. 351—205

2 Claims



1. A portable scanning digital p body size to be hand-held, two light sourc

direct light therefrom to an eye in the area of the pup upon hand-positioning of the body, one light source emitting a light beam impinging on said eye along a line within the limits of 0° to 9° from a plane tangent to the center of the pupil, and another light source emitting a beam impinging on said eye in the vicinity directly into said pupil that said oth

means for selectively actuating the light source impinging more directly on the pupil so that the responsive action of the pupil to said application of the light from said light

a bilevel pixel image sensor, and

microprocessor based control and data pr prising a computer, a battery pow

display unit

4,755,044

EMOTE OPHTHALMOSCOPE AND FUNDUS PHOTOGRAPHY UNIT

ank Thorn, Newton, Mass., assignor to Massachusetts Institute of Technology

Filed Jan. 6, 1986, Ser. No. 816,26

Int. Cl.⁴ A61B 3/14

351—206

7 Cla

ave mirror, ha

t ⅛ to about 1 m

MANY VIEWERS

Joshua D. Borah, Mansfield, James C. Merrian, West Newton and Jose Velez, Brookline, all of Mass., assignors to Applied Science Group, Inc., Waltham, Mass.

ontinuation-in-part of Ser. No. 848,154, Apr. 4, 19

od of generating and displaying m two or more individuals view fixation are supe visual presenta

esentation to at least tv

ement of each said vi

all of Japan,

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METHOD

akoto Kato, Kawasaki; Tetsuo Yokoyama; Kaoru Momose, both of Tokyo, and Toshihiro Furuya, Katsuta, all of Japan. litachi, Ltd., Tokyo, Japar
d Oct. 8, 1986, Ser. No

so that said evaluation function as

4,755,048

AL ANALYSIS OF IMPURITY ABSORPTIONS

rt Kaufman, Chicago, Ill., assignor to Amoco Corpora- hicago, Ill.
Filed Oct. 23, 1986, Ser. No. 922,165
Int. Cl.⁴ G01N 21/25 G01

ng a first end connected t
l end extending into the sa

ssion means, capable of transmitting selec
scattered light from the sampling mean
odetectors within the spectrophot

of tl

4,755,049

METHOD AND APPARATUS FOR MEASURING THE ION IMPLANT DOSAGE IN A SEMICONDUCTOR CRYSTAL

ohn L. Bomback, Plymouth; John V. James, Canton, a Charles C. Wang, Bloomfield Hills, all of Mich., assignors Ford Motor Company, Dearborn, Mich.
Filed Dec. 2, 1986, Ser. No. 937,158

rent light energy beam to provide pulses
having a predetermined pulse width a

directing said pulsed
defined area of said
sensing the third harmo
reflected from said defined area of said semiconduc crystal;
measuring the intensity of said third harmonic of ener refle
determ

4,755,050

STANDARD FOR MONITORING THE CALIBRATION OF AN OPTICAL LINE WIDTH MEASURING MACHINE

avid C. Watkins, Sugar Land, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Jul. 18, 1986, Ser. No. 886,991
Int. Cl.⁴ G01J 1/02

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generally corresponding to the width selected as a standard, so that a light intensity pattern derived from the standard will have two components spaced from each other a distance generally correspon
width selected for calibration

TICAL FIBER ACCELEROMETER AND GYROSCOPE

Richard F. Cahill, El Toro, and Eric Udd, Huntington Beach, both of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.
Filed Oct. 7, 1985, Ser. No. 785,336
Int. Cl.⁴ G01B 9/02

receiving the light beam input,
(c) a beam splitting means connected to the optical fiber splitting the first light beam into second and third light beams
second optical fiber connected to the beam splitting
eiving the second light beam,
eans for suspending the second optical fiber
vo points under a predetermined tension,
(f) a vibrating means for vibrating the optical fiber a frequency f between the two points of the support m and
(g) a reference optical fiber connected to the bea means for receiving the third light beam for in ric comparison,
(h) a detection means connected to the output of the second optical fiber and the output of the reference fiber for detect
ng ele
acceleration present with re
interferometric comparison

Marzio Giglio, Milan, and Umberto Perini, assignors to Fritsch GmbH, Idar-Ober Germany
Filed Jun. 5, 1986, Ser. No. 871,0
Claims priority, application European Pat. Off 107037.5

a laser for producing a monochromatic
a detector means including a plurality of
ucer
ng dist
an optical system for directing said lig detector means and defining an optic system including an aperture and a light beam from said aperture onto said det as to produce a convergent light beam detector means

e for supplying s
older means for said s
and displaceable alon
way extending parall

AUTOMATIC ALIGNMENT USING M

Mitchell E. Levinson, San Diego, and Thon Mar, both of Calif., assignors to Hewlet Palo Alt

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tions required for the centroids of both said pri-
nment openings and said targets to substantially

is continuous

4,755,056

M?NT FOR SPECTROSCOPY HAVI
HALIDE LAMP AS LIGHT SOURC
akoto Yasuda, Kodaira, and Tsune Miyashita, T
Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 19, 1987, Ser. No. 63,921
laims priority, application Japan, Jun. 23, 1986, 61-1449
Int. Cl.⁴ G01J 3/42
S. Cl. 356—51 1 Claim

SPECIMEN

ald H. Shaffer, Wakarusa, Ind., assignor
ies, Inc., Elkhart, Ind.
ntinuation of Ser

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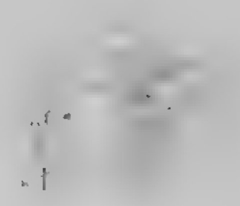
ne of its ends to the other of said first connected at its other end to the other

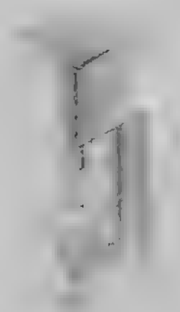


owing through t

ITH A ROTATI EMBER

edersen, Copenhagen F, Denmark, ass

Filed Feb. 26, 1986, Ser. No. 83
rity, application Denmark, Mar. 7, 1985, 1049 85
Int. Cl.⁴ B01F 7/24
36 4 Claims



into the mixing chamber and at h the materials leave the mixing

ntour defining a is of the mixing it least partly con mixing chamber otatable mixing

vely large di-

outer contour of the mixing member and the inner wall portion of the mixing chamber when compared to said first position;

(c) a drive means for rotating the mixing member about vertical axis in the mixing chamber; and

(d) at least two knives positioned on the mixing means adjacent to and facing said exit opening in an end wall of the mixing chamber and extending in a generally radial direc- tical axis of the mixing means, the end g chamber hav a radical plane

PROPORTIONAL FEEDER FOR PARTICULATE SOLIDS

Robert R. Goins, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 4, 1987, Ser. No. 116,310
Int. Cl.⁴ B01F 5/00, 5/24 15/02
U.S. Cl. 366—76 11 Claims

pper end portion, a medial portion, and n, wherein said upper end portion and form a generally vertical cavity ha gth and shape such that the downward material is uni generally vertic

connected to said first ly positioning the oper ne of said at lea wer end of the

ETERMINATION OF ICE OR SNOW FORMATIO

riedhelm Meyer, Hof Geisenberg 1, 11 Alertshausen, B 5920, Fed. Rep. of Germany

Continuation of Ser. No. 774,607, Oct. 10, 1985, abandoned
This application Sep. 24, 1987, Ser. No. 102,747
Claims priority, application Fed. Rep. of Germany, Dec. 30
lar. 19, 1984, 3410052
IN 25/04, G08B 19/02 B64D

ver supply.

old conductor exposed to said sensed region and dispo adjacent said thermal switch means for heating the lat

g said cold conductor from m response to said therma

MPENSATED DATA RECORDER

d Robert M. Nakagawa, both of Modesto DTR International, Inc., Modesto, Calif

ay 5, 1987, Ser. No
t. Cl.⁴ G01K 1/02

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TABLY MOVABLE ROLLING BEARING AND THE RESPECTIVE BEARING

Walter, Schweinfurt; Uwe Mayer, Munerstadt, and Ludwig Edelmann, Sulzthal, all of Fed. Rep. of Germany, assignors to SKF Linearsysteme GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Mar. 6, 1987, Ser. No. 22,794

priority, appl.

ASSEMBLY

ignor to Ta

es, Stamford,

Filed Apr.

tion

a retainer having two pairs of independently yieldable opposed fingers, one of said pairs engaging a portion of a surface of one of said opposing halves and the other of said pairs engaging a portion of a surface of the other of said opposing halves, said retainer being attached to said base member, said bearing being sandwiched between said retainer and said base member, and said pairs along said parting line

4,755,067

R SPHERICAL ROLLING BEARINGS

sure Asberg, Vastra Frolunda; Matts Floderus, Goteborg; Gunnar Grafstrom, Floda, and Olle Andersson, Molndal, all of Sweden, assignors to SKF Nova, Goteborg, Sweden

Filed Mar. 3, 1987, Ser. No. 20,505

Claims priority, application Sweden, Mar. 25, 1986, 86013

Int. Cl.⁴ F16C 25/08, 33/78

S. Cl. 384—482 2 Claims

f-aligning spherical rolling bearings incorp ring (1), inner race ring (2) and rolling bodies therebetween, characterized therein, that it operating, annular, mainly radially directed 6, 9, 15, 16) fixedly attached to the outer gs (1, 2) respectively, the radially outer plate ightly bent axially inwardly directed portion r plate (9, 16) having at least one annual directed to exert a mainly axial pressure against an outer face of said inwardly directed portion (8, 15a), the radially inner edge (13) of the radially outer plate (6), at large misalignment of the bearing, contacting the rolling bodies 3) radially outside the cage (4) and resulting misalignment

4,755,068

DOT MATRIX PRINT HEAD ASSEMBLY

Donald G. Hebert, Alamo, Calif., assignor to DH Technology, Inc., San Diego, Calif.

Filed Jan. 30, 1987, Ser. No. 8,828

Int. Cl.⁴ B41J 3/12

Cl. 400—124 23 Claims

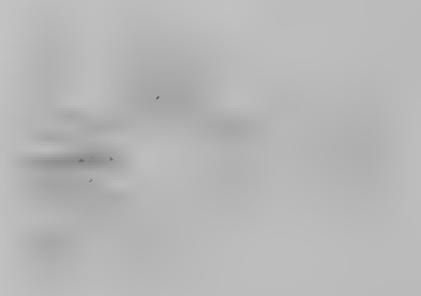
A dot matrix wire print head assembly for mounting on a mechanism and connection to electrical control circuits associated with the printer mechanism and comprising ality of elongated wire print members having drive end unted in a circumferentially spaced array and rtions mounted in a linear array for selective

radially outwardly extending intermediate

ch of said wire print members being operab

l on said hou

s between said



being located

ortions being integrally connec

ing end wall portion of said

de surface port

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4,755,069

CARD EMBOSSING AND RECORDING SYSTEM

l. LaManna, Whippany; James L. Hinton, Short Hills, Edward L. Cucksey, Upper Nyack, N.Y., and t Caldwell, N.J., assignors to National Business s, Inc., Moonachie, N.J.
Filed Jun. 2

feeding blank cards to be embossed

ompleted.

te recording

ording means having a head assembly in

l means for recording and playback which is

head transporting means along the magnetic

when moved in a reverse direction,

ard embossing means each disposed at a sepa ne of the embossing positions disposed along the transport path, each card embossing means being vertically positioned with respect to the transport path to emboss a different one of the horizontally disposed lines of characters on each card with either the first or the second pitch, at least one of the horizontally disposed lines being embossed with the first pitch and at least one of the horizontally disposed lines being embossed with the second pitch; and

ntrol means coupled to the card supply means, the record means, the card transporting means and the plurality

r controlling the card supply

d blank cards from the pickup station to the

tion, the recording of the one or more tracks

rding medium by activating the head transport

neans to the head assembly in the forward direction

le the head means records the tracks, the playback of

ecorded information by the head means by activating

eived by the card transport

g station to the separate em-

l to the

CIRCUIT FOR ACT
ESPECIALLY IN AN

Walter Cerutti, Ivrea, Italy, assignor to Ing. C. Olivetti & S.p.A., Ivrea, Italy
Filed Nov. 5, 1985, Ser. No. 795,165
s priority, application Italy, Nov. 5, 1984, 68096 A/84
Int. Cl.⁴ B41J 1/22
U.S. Cl. 400—144.2 14 Claims

ociated with said motor for generating position signals of impulse type which are indica-

movement effected by said

r determining a number of said ele

s to be effected by said shaft in order attain a given angular displacement, and a circuit module connected with said microprocessor and with said motor and responsive to each of said position signals for controlling the velocity of said shaft for elementary rotary movement of said shaft, wherein said microprocessor also comprises microprocessor time memory means permanently storing a plurality of values of theoretical times TR associated with said number

y movements and read-out means actuatable

n said circuit module one of said theoretical times, wherein said plurality of values of said theoretical times TR being provided for performing said number of said elementary rotary movements according to a predetermined law of movement of said shaft along with said given angular displacement, and the combinati

said circuit module comprises a circuit module memory means for storing a theoretical time signal TT associated with a value of said plurality of values of theoretical times TR

means

timing means responsive to said position signals for determining an evolving time signal CNT indicative of the interval of time elapsing from a last received position signal along one elementary rotary movement,

comparison menas for comparing said evolving time signal CNT with said theoretical time signal TR and generating an equality signal REF when the evolving time signal CNT is equal with the theoretical time signal TR

logic means responsive

equality signal REF

the

microprocessor in said circuit module, wherein the read-out means of said microprocessor respond to said interrupt signal to generate a new value

theoretical times TR for an

ment following said one el

and

wherein said logic means accelerates said motor during said one elementary movement independently of any command by said micro

has been received be

Co. Ltd., Tokyo, Japan
Filed Oct. 10, 1985, Ser. No. 786,315
Claims priority, application Japan, Oct. 22, 1984, 59-220524
Int. Cl.⁴ B41J 27/20
U.S. Cl. 400—188 12 Claims

A printer device for printing on bo

per that uses an ink ribbon, the printer

entral shaft, a plura

regnated with inks of

ated solid element with no ink impregnated thereon, all of said porous elements and said solid element being removably attached around said rotatable shaft and spaced peripherally apart from each other;

means for striking a selected one of said porous elements and said solid element through a paper to be printed and including a printing head arranged opposite said platen means, means for guiding said printing head and including a guide shaft arranged in parallel with said rotatable shaft of said platen means, said printing head being slidably movable on said guide shaft and having a plurality of printing wires, said printing wires being selectively drive

and

the paper is located between said printing head and platen means;

c) means for printing on the front side of the paper selectively driving said printing wires to strike said solid element through the paper and the ink ribbon, said print-

means for moving the ink ribbon to an

po and

f the paper by selec

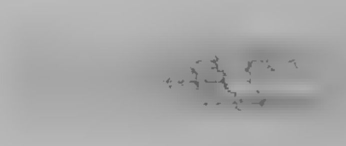
he paper, said

rotating said

f said platen n

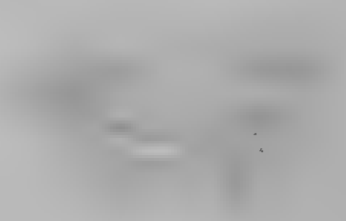
o an inoperative position

Andries F. Hoornweg, 115 Carb
tario, Canada L6V 2G2



APPLIANCE WITH
APPLICATION OF A HOT MELT ADH

scal Girardin, Thurins, and Pierre Sivignon, Ly France, assignors to Application des Gaz, Paris



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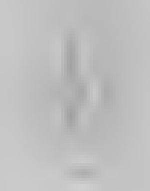

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inserting

F WITH TIP HAVING
ACHING PROJECTIONS
04 Ho 52 Dong, Walker Hill Apt., 362, Kaw
ngdong-Ku, Seoul, Rep. of Korea (133-00)
l Feb. 25, 1987, Ser. No. 18,411

al groove, the carrier engag
o that rotation of the cap and
r with respect to the barrel drives said car
axially in said barrel to move the writing
rough the tip, the improvement comprising

4,755,076
KE AND SOCKET CABLE TERMINA
M. Salama, and Jerry G. Williams, bot
la., assignors to Conoco Inc., Ponca City
Filed Nov. 25, 1986, Ser. No. 934,985
Int. Cl.⁴ F16G *11/05*
3—2.5

therein for receiving an end portion of said fil
spike having a substantially conical outer surf
ept in a center portion of said fibrous cable
of said fibrous cable dist
shape between said spike

and

tahlhalter-und Werkzeugfabrik Robert Breuning GmbH, Fr
Besigheim, Fed. Rep. of Germany
Filed Sep. 10, 1987, Ser. No. 95,558
Claims priority, application Fed. Rep. of German

approximately 30° to 60° to the

ALING BELLOWS FO
amberg, Meerbusch; Hans
ette, Essen; Karl-Heinz Barbet,
Busse, Hilden, and Benno Klier, Meerbusch, all of Fed
of Germany, assignors to TRW Ehrenreich GmbH & Co
Dusseldorf, Fed. Rep. of Germany
Filed Apr. 16, 1987, Ser. No. 39,078
laims priority, application Fed. Rep. of Germa

Int. Cl.
83—134

Yozi Nishino, 4-71, 3-Chome Wakechuashimachi
Osaka-Shi, Japan
Filed Jan. 16, 1987, Ser. No. 4,3

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Zuwe, 3645 AM Vinkeveen, Nether

21, 1986, Ser. No. 933,183

Netherlands, Dec.

ack into the ground

own from the ground

4,755,081

J-TUBE PULL FORCE

Esparza, Katy, Tex., assignor to Shell Oil Compa
ton, Tex.

tinuation of Ser. No. 868,985, May 30, 1986. This application Jun. 16, 1987, Ser. No. 65 17

Int. Cl.⁴ F16L 1/04

and

J-tube

4,755,082

REMOVABLE BOTTOM FOUNDED STRUCTURE

Robert H. Beskow, Midland, Tex.; Patrick J. Dunn, Pleasant Hill, and Warren S. Fine, Kenwood, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 898,989, Mar. 3, 1986, Pat. No. 4,695,201. This application May 1, 1987, Ser. No. 45,028

Claims priority, application Canada, Feb. 3, 1987, 5309

Int. Cl.⁴ E02B 17/02

, the raised

heave base pl

capsules adopted to be in

capsules can be adjusted

4,755,083

ADJUSTABLE CAP UNIT

rich, Essen, and Hans-Ferdinand Bernert, Fed. Rep. of Germany, assignors to Bochumer Eintzmann GmbH & Co. KG, Bochum, Fed. Rep.

Filed Nov. 6, 1986, Ser. No. 928,320

Claims priority, application Fed. Rep. of Ger
1985, 3540807

Int. Cl.⁴ E21D 17/

le cap, the adjusting cylinder me

ng the working face, the adjusting cylinder mechanism
l within and hinged to the adjustable cap, an end por-

e adjusting cylinder mechanism hinged to the bearing the end portion located below the longitudinal axis of echanism, and guiding means provided guiding the adjusting cylinder mecha is length in a restrictive manner

ROOF-CONTACTING STRUCTURES OF MINE ROOF SUPPORTS

eters, Dülmen; Harry Rosenberg, Lüdinghausen, and Walter Weirich, Dortmund, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhütte Westfalia GmbH, Postfach, Fed. Rep. of Germany

Filed Feb. 11, 1987, Ser. No. 13,411

Claims priority, application Fed. Rep. of Germ

S. Bergersson, Järbo, and Lars-Erik Gustafsson, Sandv all of Sweden, assignors to Santrade Limited, Lucerne,

Filed Jan. 20, 1987, Ser. No

Claims priority, application Sweden, Fe

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HOLE SAW UNJAMMING TOOL

da, 60 Parker Street, Scranton, Pa. 18408, assignor
ajda and Joyce Vajda, both of Scranton, Pa.
Filed Aug. 21, 1987, Ser. No. 87,757
Int. Cl. B23B 51/00

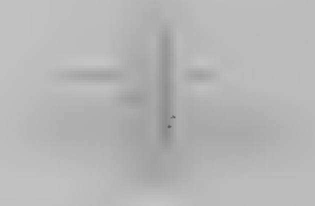
4,755,069

ADAPTED TO FACILITATE THE
AND UNLOADING OF OBJECTS

llgass, Chemin de Vy-Neuve 12, CH-147
Switzerland
Filed Feb. 19, 1987, Ser. No. 16,249
y, application Switzerla

INDUSTRIAL FASTENER WITH FLEXIBLE

Frederick J. Macfee, Jr., Menands, and Frederick J
Loudonville, both of N.Y., assignors to Simmons Fastene
Corporation, Albany, N.Y.
Continuation-in-part of Ser. No. 799,907, Nov. 20, 1985, Pat
No. 4,647,263. This application Feb. 27, 1987, Ser. No. 20,05
The portion of the term of this patent subsequent
2004, has been disclaimed.



guide said screw member and

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clearance hole and said raised portion being wider

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nc., Savannah, Ga
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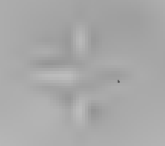
This appl



d, Haifa, Israel
Sep. 11, 1985, Se
plication Israel
Int. Cl.⁴ F16B

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g said
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ed upon rotation

ng magazine extend
: and open thereto
e toward the sa

xtending radially to
okie-receiving
the sawtooth

ace being cyclically shiftable between a lower
l a raised position where it is in substantial
ceiving magazine when a preset number of cookies have been fed to the wheel, and

for a predetermined period of time in order to enable the last of the cookies fed to the wheel to reach the cookie

isposed in said cookie-col
wheel

4,755,09

OADING BARGE AND APPARATUS THEREFOR

Robert A. Kaucic, Newark, Del., assignor to Fa
Inc., Camden, N.J.

led Jul. 16, 1986, Ser. No. 886,97
Int. Cl.⁴ B65G 67/60

r unloading a vessel c
ted carriage movably m
at said carriage e
arriage back and forth over said hold
id carriage on its upper end and having
a free engaging tip portion on its lower
end being integral with said upper end and e
he cargo for directly contacting and collect
ously directly lifting said cargo
n said hold to a higher point
means connected to rotate said auger;
pivot means operatively connected to said auger for pivotal movement relative to said carriage, said pivotal movement including rotation of said lower end about a vertical axis extending downwardly from said upper end over a continuum of 360 degrees; and
ans carried by said carriage and movable with
to receive and convey cargo from said auger

VESSEL AND ITS APPLICATION TO A STORAGE HOPPER IN A SHAFT FURNACE CHARGING INSTALLATION

re Mailliet, Howald, and Germain Schilz, Esch, both
bourg, assignors to Paul Wurth S.A., L
bourg

Filed Jan. 29, 1987, Ser. No. 68,10
Claims priority, application Luxembourg, Jan

sealing valve means, sai

eans for rotating about a first a
housing said rotary support me

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town, both of Pa., to Hershey Foods Corporation, Hershey, Pa.

ntinuation-in-part of Ser. No. 723,085, Apr. 15, 1985, Pat. N
4,657,466. This application Oct. 2, 1986, Ser. No. 914,24
he portion of the term of this patent subsequent to Apr. 1
2004, has been disclaimed.

Int. Cl.⁴ B65G 65/00

1—416 11 Cla

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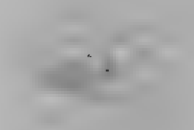

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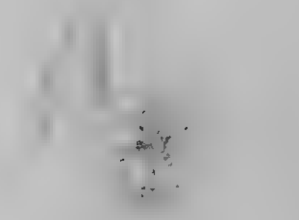
4,755,10

)PERATOR CONTROL SYSTEM

schultz, Richland, and Louis A. Haddock
both of Mich., assignors to Clark Equipment Comp
Bend, Ind.

ation of Ser. No. 796,823, Nov. 12, 1985, abando
his application Jan. 28, 1
Int. Cl.⁴ G05



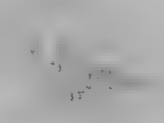
4,755,101

REMOVABLY ATTAC
LOADER TO VEHICLE

alo Hamada, and Masami Hirooka, both of Osaka, Japan, assignors to Kubota Ltd., Osaka, Japan

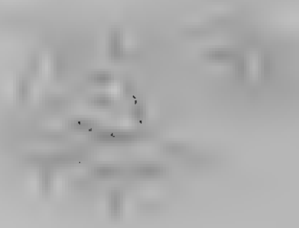
Filed Apr. 21, 1987, Ser. No. 40,80

laims priority, application Japan, Jun. 4, 1986, 61-130650;
1986, 61-87681[U]



king portion supported on the front end of the lift
teral pivot, a work cylinder operatively connected

ccanica, San Defendente



lmut Streifinger,
MTU
Rep. of C

Filed Feb. 24, 1987, Ser. No

laims priority, application Fed. Rep
6, 3605619

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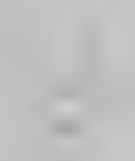

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ading between the unison ring

om the beam p

nferentially in

Filed Nov. 17, 1986, Ser. No. 931,09

Claims priority, application France, Nov. 21, 19

Int. Cl.⁴ B64C 27/36

rdly from said stirrup having, articulated thereon ding axially of said beam, a blade on each of said m ends, said blade on each of said outwardly extending am ends being retained on said beam against centrifugal ce by spaced bearings, said beam being tubular and of circu- cross-section at its opposite ends and evoluting inwardly, ward said stirrups, into an elliptical cross-section of constant ape intermediate the ends of said blades and between said rrup legs, said bearing articulating said beam between said rrups legs and said spaced bearing retaining said blade one h of said extending beam ends being conical stratified elas ubstantially identical shape

4,755,10

LIQUID-RING PUMP HAVING ADDITIONAL NINGS IN CONTROL DISC FOR WARM AND CO LIQUID

ter Trimborn, Nuremberg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 19, 1987, Ser. No. 27,824

Claims priority, application Fed. Rep. of German

1. A liquid-ring

having a hub a

he hub, the van

liquid,

ft of the vane wheel

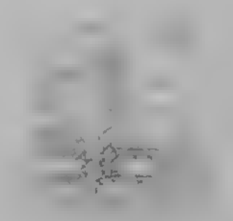
to the chamber of said first end bell for the co of operating liquid and a second inlet for feeding id to the chamber of said first end bell for of operating liquid, and

sc sealingly disposed between the first nd the housing and provided with suction and p slots, first and second openings for the separate cation with the separate chambers for the warm s of operating liq l hub and dispos he suction slot, th hamber of the end bell for the cold ening into the first slot, and

the first and one another

Marcio L. Todescat; Dietmar E. B. Lilie, and Hea all of Joinville, Brazil, assignors to presa B. Compressores S/A Embraco, Brazil

Filed Apr. 2, 1987, Se



aving suction a

ast one cylinde

SNAP-TOGETHER PI

Charles R. Botts, San Diego,

Inc., San Diego,

Filed Apr. 3,

Int. Cl.⁴ H

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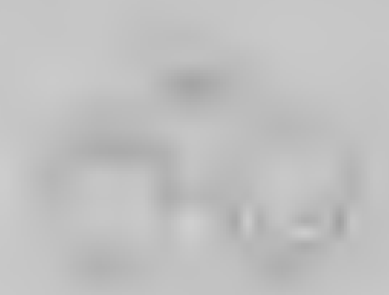
, both of Vienna, Aus-
werke Aktiengesellschaft,

, 894,489, Aug. 11, 1986, abandoned.

PUMPING DEVICE, PARTICULARLY SUITABLE FOR COMPRESSING FLUIDS ON DEEP SEA-BOTTOMS
ittorio Cocchi, Florence, and Vasco Mezzedimi, Poggibonsi, both of Italy, assignors to Nuovopignone Industrie Meccaniche e Fonderia S.p.A., Florence, Italy
Filed Jun. 1, 1987, Ser. No. 57,014
ty, application Italy, Jun. 11, 1986, 20758 A/86
Int. Cl.⁴ F04B 43/10
5 Claims



thickness from its peripheral edge towards its
rt and fixed at said edge to the middle of said

said membranes

said delivery line

4,755,112
AIR PUMPING SYSTEM
ohn R. Houser, River Rte. Box 16-A, Magnolia 36555, and Joseph B. Childress, HC-79 Box 820
ed Aug. 5, 1987, Ser. No. 81,793
nt. Cl.⁴ F04B 23/00; E03B 7/10

system comprising a s
r, a header tank and a

n with said pistons to lubricate s

ur when said w
let valve is open

4,755,113
SLEEVE PUMP
ert Rasmussen, Buffalo, Minn., assignor to Progressive Assembly Machine Co., Inc., Plymouth, Minn.
Filed Apr. 1, 1987, Ser. No. 33,440

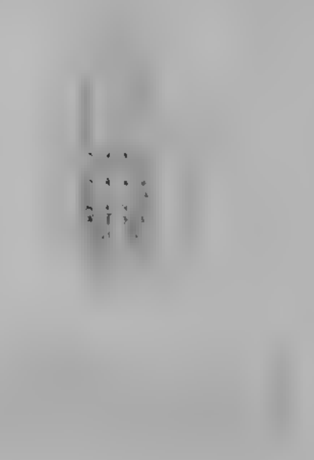
Cl. 417—518
1. A fluid pump, comprising

g spool received through one of said cylinder ends
valving spool including first and second, axial

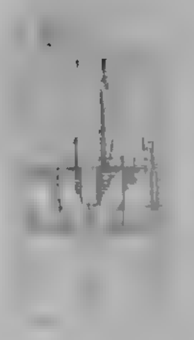
eans carried within said cylinder for sele
id first channel from fluid communication

rough said cylinder end opposed to

pool between a f
eans clears said n
sealing means seals fluid communication between said first and second channels, and a second position wherein said



MESH O
Masao Shibayashi, Shi
shi Uchikawa, Shimizu; Yasuro Ohishi, Fujen
Murayama, Shimizu; Hiroaki Kuno, Shimizu
akatsu, Shimizu, and Minoru Tomono, Shimizu, al



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Japan, assignor to Atsugi Motor Parts

on of Ser. No. 795 42

application Jan. 22 3,79:

priority, applicati 21, 1984, 59

ine, comprising

rubber and an annular seal ring

reld in engagem

annular seal

4,755,116

USING FOR A ROTARY PISTON ENGI HAVING SOFTENED AREAS SURROUNDING THE PLUG HOLES

Kenji Tarumoto; Junichi Yamamoto, and Yoshifumi Yamamoto, of Hiroshima, Japan, assignors to Mazda Motor Corpora- Hiroshima, Japan

Filed Mar. 16, 1987, Ser. No. 26,469

ns priority, application Japan, Mar. 18, 1986, 61-61717

Int. Cl.⁴ F01C 21/0

L 418—178 8 Claims

that of said apex seals so as t

APPARATUS FOR THE PRODUCTION OF BACK-FOAMED CUSHIONS

Volker Onnenberg, Wiehl, and Günter Möllmann, Hagen, both of Fed. Rep. of Germany, assignors to Fritsche-Mollmann GmbH & Co., Lotte and Bayer Aktiengesellschaft, Leverku sen, both of, Fed. Rep. of Germany

Filed Sep. 24, 1987, Ser. No. 100,504

Claims priority, application Fed. Rep. of Germany 1986, 3633920

L 425—4 R

lower mold half defining a cavity, the inside which is capable of being covered by said cover

ociated with said mold said mix head ducing foam materials and/or reactants

l above the lowe nents with conta

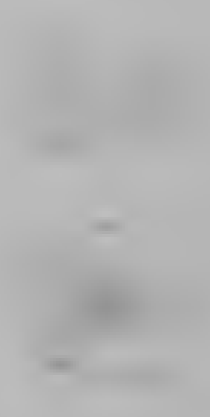
Andrew P. Ondush, Catasaqua, and Roger A. Howells, Orefi both of Pa., assignors to Air Products and Chemicals, I

chamber portion having a continuous l therethrough, said passage partially op of said bottom chamber

n elongated generally rectangular shaped second c chamber portion having a shape complimentary t tom chamber portion and having ed to removably close said longit gas passage spaced proximate a firs l passage and in fluid communi d gas passage spaced proximate a gitudinal passage and in fluid com th; fluid conduit means connecting said first and s

PRESS

m Asari, Nishinomiya, o both of Jap



adapted to perf shaping mater

APPARATUS FOR THE UPHOLSTERY WITH BACK

Volker Onnenberg, Wiehl, and Günt of Fed. Rep. of Germany, assig GmbH & Co., Lotte and Bayer A

Claims p

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he first angular position, stream

on molding system comprising a mold

ch a fluid plastic fl

25, 1986, Ser. No. 934,676

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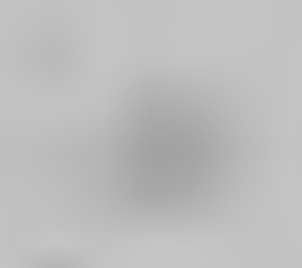

Aubatte, Buffalo, and John J. Cunat, Sny
signors to Great Lakes Orthodontics.

PERSONNEL IT

Filed Feb. 10, 1986, Se
Int. Cl.⁴ G0

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…son Hudspeth, Norwell, and Paul Mills, Acton, all of Mass.
…ssignors to Plastic Systems, Inc., Marlboro, Mass.

…y E. Walkup, Amherst,
Boston, Mass.

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agano, Izumi, Japan, as
ny Limited, Osaka, Japan
Continuation of Ser. No. 904,650, Sep. 1
which is a continuation of Ser. No. 579,96

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4,755,191

FINISHING OF HARD CHROMIUM PLATED PRODUCTS

Henry D. Crute, Pottstown, Pa., assignor to LaSalle Steel Company, Hammond, Ind.

Continuation-in-part of Ser. No. 749,429, Jun. 27, 1985, abandoned. This application Jul. 8, 1986, Ser. No. 882,458

Int. Cl.⁴ B24D *3/00*

U.S. Cl. 51—293 **6 Claims**

1. A process for improving the corrosion-resistance of a chromium plated article comprising

- **polishing a chromium plated article,**
- **drying the article to provide a moisture free chromium surface,**
- **friction finishing said chromium surface by mechanically applying a friction finishing compound under conditions which cause the temperature of said chromium surface to be increased to about 500° F.,**
- **said friction finishing compound comprising abrasive particles having an average particle size of less than 15 microns dispersed in a water free organic vehicle.**

mixture of gases, which process includes subjecting a glassy-type polymeric gas separating membrane to a mixture of gases under sufficient pressure to achieve a flux of gas across the membrane and collecting the gas permeate, wherein the improvment comprises treating the membrane by a process according to claim 1 or 24

4,755,193

POLYMER AND A MEMBRANE HAVING AN IMPROVED GAS-PERMEABILITY AND SELECTIVITY

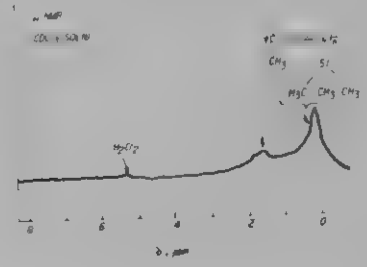
Toshinobu Higashimura, 35, Kitashirakawa-Ioricho, Sakyo-ku, Kyoto; Toshio Masuda, Otsu, and Koichi Takada, Honmachi, all of Japan, assignors to Toshinobu Higashimura and Sanyo Chemical Industries, Ltd., both of Tokyo, Japan

Filed Sep. 28, 1983, Ser. No. 536,722

Claims priority, application Japan, Feb. 23, 1983, 58-29786

Int. Cl.⁴ B01D *13/00*

U.S. Cl. 55—16 **18 Claims**



10. A method for separating a specific gas from a gas mixture, by using a permselective membrane comprised of a polymer having repeating units of the formula:

wall having inlet means formed through the wall in the central portion of the vessel, the inlet means connected to a source of a gas and liquid mixture to receive and introduce into the vessel the gas and liquid to be separated, mist extractor means mounted across the upper end of the vessel above the inlet means for receiving the ascending gas to substantially remove remaining liquid from the gas, an outlet through the vessel above the mist extractor means to discharge the substantially liquid-free gas, and an outlet through the lower portion of the vessel to withdraw the liquid separated from the gas and collected in the lower portion of the vessel, said method of separation comprising:

- **providing an impact surface within the separator vessel opposite the inlet means and directing the incoming gas and liquid stream to impact against the impact surface whereby substantially 30 percent of the energy of the incoming stream is dissipated,**
- **dividing the incoming gas and liquid stream received by the inlet means and directed against the impact means into at least two substantially equal segments,**
- **directing said two segments of gas and liquid stream away from the inlet means substantially horizontally in opposite directions to each other,**
- **impinging each segment of gas and liquid stream directed away from the inlet means against the wall of the vessel whereby an additional substantially 30 percent of the energy of the incoming stream is dissipated,**
- **guiding each segment of gas and liquid having impinged against the wall of the vessel circumferentially along the wall to a point diametrically opposite the inlet means, and**
- **colliding the oppositely directed segments of gas and liquid mixture into each other at said point whereby an additional substantially 30 percent of the energy of the incoming stream is dissipated and the gas and liquid separation**

Dalton's Law of
proceeding towar
ber and vessel, and

- continuously directing said degassed water through an outlet at said bottommost portion of said vessel into a device desirous of using said continuous flow of degassed water

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4,755,196

AIR-DRYING APPARATUS

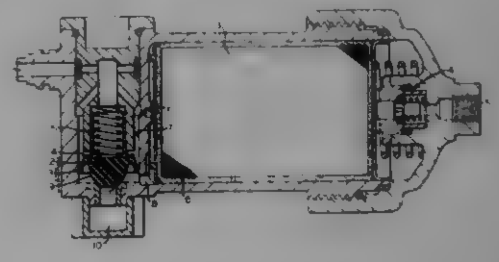
Josef Frania, Hanover; Wilhelm Haak, Wennigsen, and Erich Seewald, Langenhagen, all of Fed. Rep. of Germany, assignors to WABCO Westinghouse Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany

Filed Jun. 30, 1986, Ser. No. 880,237

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1985, 3523403

Int. Cl.⁴ B01D *53/04*

U.S. Cl. 55—163 **12 Claims**



1. A gas drying apparatus for use with compressed fluid operated systems operable to at least a normal operating and a regenerative phase, said apparatus comprising

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- (a) a housing having an inlet portion, a drying material portion, and an outlet portion;
- (b) an activation piston disposed in an inlet chamber formed in said inlet portion;
- (c) a passageway formed between said inlet portion and said drying material portion, downstream of said activation piston, so as to allow communication of an operating compressed gaseous fluid to said drying material portion, therethrough;
- (d) an exhaust valve disposed in said inlet portion having a valve body element formed by a portion of said activation piston, and a valve seat formed adjacent an exhaust opening, said valve body being urged onto said valve seat by said operating compressed fluid from the inlet side during such normal operating phase, thereby closing said exhaust valve, said valve body further being urged off of said valve seat to open said exhaust valve following interruption of said operating compressed fluid as occurs during such regenerative phase by a regenerative fluid flowing back from the compressed fluid operated systems through said drying material portion and to said exhaust opening, which is at a reduced pressure; and
- (e) said drying material portion having a drying chamber formed therein which contains a desiccant material.

4,755,197

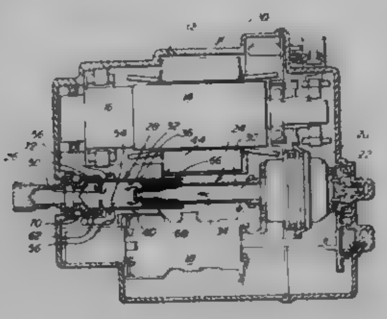
TORQUE TRANSMITTING DEAERATING APPARATUS

Victor N. Benson; James R. Easter, and Wayne A. Flygare, all of Rockford, Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Dec. 23, 1985, Ser. No. 812,905

Int. Cl.⁴ B01D *19/00*

U.S. Cl. 55—182 **13 Claims**



1. In a torque transmitting apparatus, deaerating means comprising elongated drive shaft means for transmitting power to a machine, gearbox or the like from an appropriate power source, at least a portion of said drive shaft means comprising a torque tube with a tubular wall defining a deaeration chamber directly within the drive shaft means remote from the machine, means for ducting aerated liquid into the deaeraton chamber whereby relatively rapidly rotation of the drive shaft means causes radial acceleration of the liquid to effect radially outward separation of the liquid from the air under the influence of centrifugal force, means located near an outer periphery of the chamber for ducting deaerated liquid herefrom, and means located inwardly of the outer periphery of the chamber for ducting separated air from the chamber.

13. A deaerating torque tube, comprising means defining a deaeration chamber within a portion of the torque tube, a disconnect mechanism in said portion of the torque tube for separating said portion from the remainder of the torque tube, means for ducting aerated liquid to the deaeration chamber whereby relatively rapid rotation of the torque tube causes radial acceleration of the liquid to effect radial separation of the liquid from the air under the influence of centrifugal force, means located near an outer periphery of the chamber for ducting deaerated liquid therefrom, and means located inwardly of the periphery of the chamber for ducting separated air from the chamber.

4,755,198

COLUMN FOR TREATING GASES

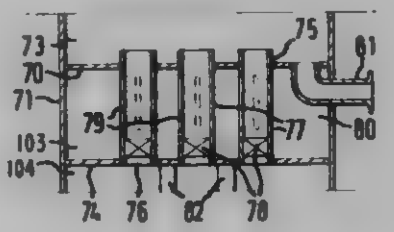
Richard C. Darton, The Hague, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 601,113, Apr. 18, 1984, abandoned, which is a continuation of Ser. No. 523,292, Aug. 15, 1983, abandoned, which is a continuation of Ser. No. 341,416, Jan. 21, 1982, abandoned. This application Sep. 22, 1986, Ser. No. [illegible]

Claims priority, application United Kingdom, Feb. 3, 1981, [illegible]

Int. Cl.⁴ B01D *53/14*

U.S. Cl. 55—237 **2 Claims**



1. A column for treating gases by separating liquid and/or solid contaminants from the gases and then washing the gases with a washing liquid, wherein the presence of the contaminants would adversely affect the washing, comprising a separation space within the column arranged with respect to a washing space to prevent the washing liquid from contacting the contaminants within the separation space, means for introducing gases and contaminants essentially horizontally into the separation space, a plurality of fixed curved vanes arranged in a spaced-apart essentially horizontally extending series with each succeeding vane being further away from the means for introduction of gases and contaminants and having its uppermost edge higher than the uppermost edge of the preceding vane and each uppermost edge being directed toward the means for introduction of gases and contaminants and each lowermost edge of each vane being directed downwardly, so that each of the vanes is operative to intercept and deflect downwardly a part of the gases and contaminants and thereby separate a part of the contaminants from the gases, a plurality of open ended tubular elements arranged in openings in a tray in an upper end of the separation space, a vane assembly arranged inside each tubular element and operative to impart a swirling motion to separate the remaining contaminants from the gases passing therethrough, a plurality of tubes each having its lower end arranged within each of said tubular elements and substantially coaxially arranged with each vane assembly therein and positioned and arranged to pass the gases substantially free of contaminants to the washing space, means for washing the gases with the washing liquid, means for preventing the washing liquid from flowing into the contaminant separation space of the column and means for collecting and discharging the washing liquid substantially free of contact with the contaminants.

4,755,199

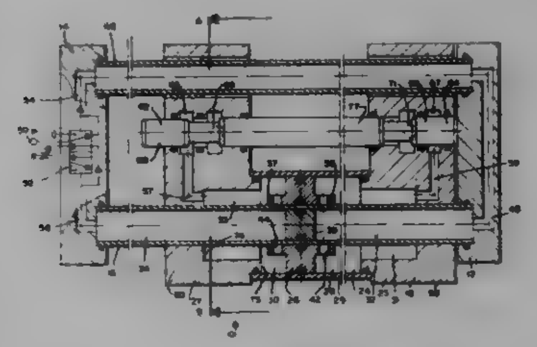
LINEAR DRIVE UNIT FOR CLEANING FILTERS

Hans W. Esch, Eidengesheimer Strasse 30, D-6464 Altenhasslau, and Michael Hennig, Hammerring 28, D-[illegible] [illegible], both of Fed. Rep. of Germany

Filed Aug. 13, 1987, Ser. No. 84,728

Int. Cl.⁴ B01D 46/04

U.S. Cl. 55—284 **8 Claims**



1. A linear drive unit for cleaning filters by means of compressed air directed onto them, comprising:
- a cylinder whose facing walls are penetrated by a piston rod running coaxially to the cylinder,
- the piston rod has two hollow sections extending along its longitudinal axis,
- between the sections the piston rod is surrounded by a piston sliding along the internal wall of the cylinder,
- each of the hollow sections of the piston rod is connected by holes to cylinder interior sections separated by the piston,
- each of the faces of the cylinder has a channel running in it which is connected on the one hand to the associated cylinder internal section and on the other hand to a nozzle bar emitting the compressed air,
- the channel has a connection between the cylinder internal section and the closure element releasing or closing the nozzle bar,
- the cylinder is guided along a guide rod running parallel to the piston rod,
- the guideway can be flowed through by compressed air and connected to one of the sections of the hollow piston rod,
- the other section of the piston rod and the guide rod are connected to a compressed air source or permit a pressure reduction alternately,
- wherein the compressed air flowing into the sections of the piston effects both the linear motion of the cylinder and cleaning of the filter.

4,755,200

FEED GAS DRIER PRECOOLING IN MIXED REFRIGERANT NATURAL GAS LIQUEFACTION PROCESSES

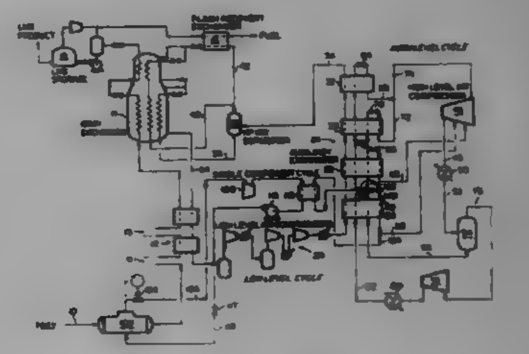
Yu-Nan Liu, Whitehall, and Charles L. Newton, Bethlehem, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Feb. 27, 1987, Ser. No. 20,286

Int. Cl.⁴ F25J *3/00*

U.S. Cl. 62—11 **12 Claims**

9. In a process for the liquefaction of a natural gas feedstream using two closed cycle, multicomponent refrigerants wherein a high level refrigerant cools a low level refrigerant and the low level refrigerant cools and liquefies the natural gas feedstream, comprising;
- cooling and liquefying a natural gas stream by heat exchange with a low level multicomponent refrigerant in a first closed refrigeration cycle, which refrigerant is rewarmed during said heat exchange,
- compressing said rewarmed low level refrigerant to an elevated pressure and aftercooling it against an external cooling fluid,
- further cooling said low level refrigerant by multiple stage heat exchange against a high level multicomponent refrigerant in a second closed refrigeration cycle, which high level refrigerant is rewarmed during said heat exchange,
- compressing said rewarmed high level refrigerant to an elevated pressure and aftercooling it against an external cooling fluid to partially liquefy said refrigerant,
- phase separating said high level refrigerant into a vapor phase refrigerant stream and a liquid phase refrigerant stream,
- subcooling and expanding portions of the liquid phase refrigerant stream to lower temperature and pressure in multiple stages to provide the cooling of the low level refrigerant and to cool and liquefy the vapor phase refrigerant stream, and



- compressing the vapor phase refrigerant stream and condensing it against an external cooling fluid, before subcooling it against the liquid phase stream and expanding it to lower temperature and pressure to provide the lowest stage of cooling to the low level refrigerant,

the improvement comprising:
- precooling the natural gas feedstream so as to prevent the formation of hydrates by heat exchange of the natural gas feedstream with a boiling single component refrigerant in a precooler thereby producing a vaporized refrigerant wherein the temperature of the precooler is controlled by controlling the pressure on said boiling single component refrigerant in the precooler;
- increasing in pressure and condensing said vaporized refrigerant in heat exchange with said high level multicomponent refrigerant; and
- flashing said condensed refrigerant and returning said flashed refrigerant as recycle to said precooler.

4,755,201

PROCESS FOR REMOVING LIGHTER VOLATILE IMPURITIES FROM GASES

Manfred Eschwey, Dusseldorf, and Werner [illegible], [illegible], both of Fed. Rep. of Germany, assignors to Messer. Griesheim GmbH, Fed. Rep. of Germany

Filed Apr. 17, 1986, Ser. No. 853,234

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1985, [illegible]

Int. Cl.⁴ F25J *5/00*

U.S. Cl. 62—12 **7 Claims**

1. In a process for removing lighter volatile impurities from gases in order to obtain the gases in highly purified form, the improvement being in continuously feeding the gas to be purified into a condenser by means of a gas transfer pump communicating with the condenser, cooling a surface of the condenser at cryogenic temperatures between −100° C. and −200° C. on a cold surface of the condenser to which the gas is exposed, condensing the gas by means of the gas contacting the cold

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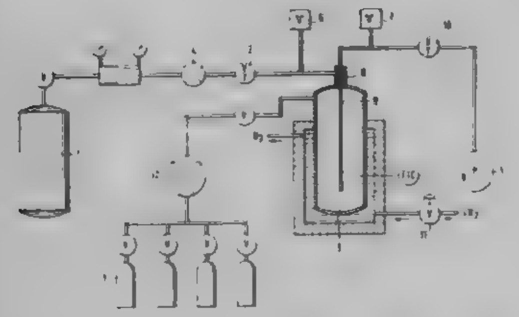
surface to form a deposit from the gas to be purified with the lighter volatile impurities remaining in gaseous form, and



continuously withdrawing the lighter volatile impurities in gaseous form from the condenser.

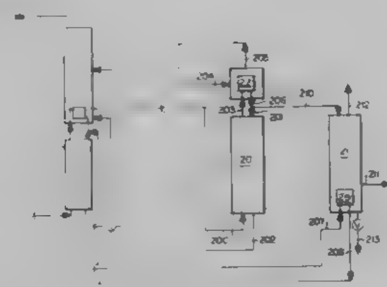
4,755,202
PROCESS AND APPARATUS TO PRODUCE ULTRA HIGH PURITY OXYGEN FROM A GASEOUS FEED

Harry Cheung, Buffalo, N.Y., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jul. 28, 1987, Ser. No. 78,757

Int. Cl.⁴ F25J *3/04*

U.S. Cl. 62—17 25 Claims



1. A process to produce ultra high purity oxygen from a gaseous feed comprising:

(a) introducing gaseous feed containing oxygen, light impurities and heavy impurities into an absorbing column;

(b) passing gaseous feed up the absorbing column and absorbing heavy impurities from ascending gas into descending liquid;

(c) condensing resulting gas, passing a first liquid portion thereof into a stripping column and passing a second portion thereof down the absorbing column as said descending liquid;

(d) passing first liquid portion down the stripping column and stripping light impurities from the downflowing liquid into upflowing vapor to produce ultra high purity oxygen liquid;

(e) vaporizing ultra high purity oxygen liquid and passing resulting vapor up the stripping column as said upflowing vapor; and

(f) recovering product ultra high purity oxygen.

4,755,203
OPTIC FIBER POSITIONING FOR LENSING METHOD

Bruce Coutts, Costa Mesa, Calif., assignor to ITT Corporation, New York, N.Y.

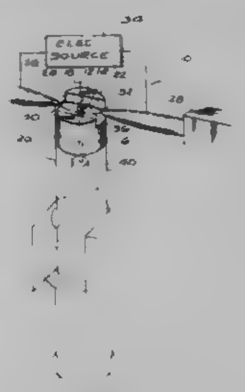
Filed Jan. 13, 1987, Ser. No. 2,884

Int. Cl.⁴ C03B *37/075, 23/09;* **G02B** *6/00*

U.S. Cl. 65—2 8 Claims

1. A method for forming a lens at the forward end of an optical fiber, where the lens has a greater diameter than the rest of the fiber, comprising:

positioning a forward end portion of an optical fiber between the pointed tips of a pair of electrodes, and establishing an electric arc which includes a visible arc portion between the electrode tips, at an arc current and duration which melts the forward end portion of the fiber to form it into a lens of largely spherical shape at the forward end of the rest of the optical fiber, while maintaining the electrodes and said optical fiber stationary with respect to each other;



said step of positioning including orienting said fiber so its axis is substantially vertical and locating the forward tip of the optic fiber forward of an imaginary line connecting the tips of said electrodes before establishing said arc and said step of establishing an arc includes continuing said arc to keep the fiber end portion molten until the center of said lens lies behind said imaginary line.

4,755,204
MANUFACTURE OF CURVED GLASS SHEETS

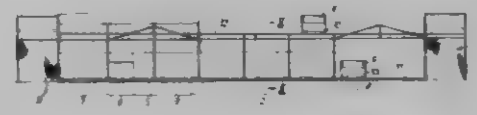
James Boardman, King Norton, and Willem Wiechers, Ormskirk, both of England, assignors to Pilkington Brothers P.L.C., St. Helens, England

Filed Feb. 18, 1987, Ser. No. 16,097

Claims priority, application United Kingdom, Feb. 20, 1986, [illegible]

Int. Cl.⁴ C03B *23/023*

U.S. Cl. 65—107 13 Claims



1. A method of manufacturing curved glass in which the glass is supported on a sag bending mould, wherein: the mould is mounted in a box on a carriage and passed through a furnace having a number of heating sections where the glass is heated to bending temperature by radiant heating from above the glass and sags to conform to the mould shape; and, during the initial heating of the glass on the mould, hot air is supplied downwardly into the box and deflected around the mould in the box beneath the glass to minimise the temperature difference between the mould and the glass.

4. Apparatus for manufacturing curved glass, comprising: a sag bending mould mounted in a box on a carriage which is transported through a tunnel furnace having a number of heating sections; hot air supply means, at least in a first heating section of the furnace, for directing hot air downwardly into the box; and deflectors mounted in the box for deflecting the hot air beneath and around each mould as it supports glass in the furnace.

4,755,205
SOIL-ACTIVATING AGENT AND ITS APPLICATION

Bernd Nille, Wolfenbüttel, Fed. Rep. of Germany, assignor to Gebr. Friedrich GmbH & Co. Bauservice KG, Salzgitter, Fed. Rep. of Germany

Filed Feb. 28, 1986, Ser. No. 831,299

Claims priority, application European Pat. Off., Jan. 12, 1985, [illegible]

Int. Cl.⁴ C05F *11/08*

U.S. Cl. 71—6 16 Claims

1. A soil-activating agent for application to extreme soils which are characterized as being sufficiently depleted of organic matter, sufficiently overburdened with salt, sufficiently overburdened with heavy metals or combinations thereof so as to inhibit greening of said soils, wherein the soil-activating agent is comprised of a fungal mycelium biomass in combination with a tertiary chemical system comprised of nitrogen base, sugar and phosphoric acid wherein the nitrogen base to sugar to phosphoric acid ratio of said tertiary chemical system is about 40:20:40, the ratio of said biomass to said tertiary chemical system being from about 2.5:1 to about 1:1.

4,755,206
RECLAMATION OF SODIUM-CONTAMINATED SOILS

Greig J. Clark, 35 Pineland Close N.E., Calgary, Alberta, Canada [illegible]

Continuation-in-part of Ser. No. 649,213, Sep. 10, 1984, abandoned. This application Apr. 16, 1986, Ser. No. 852,545

Claims priority, application Canada, Jan. 31, 1984, 446458

Int. Cl.⁴ C05G *3/04*

U.S. Cl. 71—27 16 Claims

1. A process for the preparation of a stable, concentrated solution intended for subsequent aqueous dilution and application to sodium contaminated soils, comprising:

(a) preparing an initial aqueous solution having a concentration in the range of from about 1 to 4% by weight of a water soluble calcium or magnesium salt and dissolving therein from about 1 to 2% by weight of a water soluble anionic polyacrylamide polymer having an average molecular weight of at least about 1,000,000;

(b) preparing a substantially saturated aqueous solution of the water soluble calcium or magnesium salt employed in step (a); and

(c) mixing from about 5 to 20% by volume of the polymer-containing solution of step (a) with from about 80 to 95% by volume of the substantially saturated solution of step (b) to obtain the stable, concentrated solution.

11. A method of productively reclaiming sodium contaminated soils, comprising applying to the surface of such soils an effective volume of a treatment solution obtained by diluting a concentrated solution according to claim 1 with sufficient water to provide a treatment solution having a viscosity of no more than about 3 cP at a shear rate of 511 reciprocal seconds (25° C.).

4,755,207
SYNERGISTIC MYCOHERBICIDAL COMPOSITIONS

James S. Bannon, Ruston, La., assignor to Mycogen Corporation, San Diego, Calif.

Filed Jul. 28, 1986, Ser. No. 890,257

Int. Cl.⁴ A01N *63/04*

U.S. Cl. 71—79 8 Claims

1. A process for controlling sicklepod which comprises applying to sicklepod aqueous composition comprising an emulsifiable crop oil consisting of a non-phytotoxic crop oil, and an emulsifier, and *Alternaria cassiae* spores.

4,755,208
BIOLOGICAL CONTROL OF WILD POINSETTIA AND OTHER WEEDY SPURGES WITH A FUNGAL PATHOGEN

Joe A. Riley, and Harrell L. Walker, both of Ruston, La., assignors to Mycogen Corporation, San Diego, Calif.

Filed Apr. 25, 1986, Ser. No. 856,614

Int. Cl.⁴ [illegible]

U.S. Cl. 71—79 6 Claims

1. A composition for controlling wild poinsettia and weedy spurges comprising a herbicidally effective amount of novel isolate of the fungus *Alternaria euphorbiicola*, having the identifying characteristics of deposit NRRL 18056, in association with an inert agricultural carrier.

4,755,209
CERTAIN HERBICIDAL 2-PYRIDYLOXY(OR PHENOXY)-PHENOXY-LOWER ALKANOYLAMINOMETHYLENE-PHOSPHONIC ACIDS OR ESTERS THEREOF

Shizuo Azuma; Toshiyuki Hiramatsu; Koji Nakagawa, all of Iwakuni, and Yataro Ichikawa, Tokorozawa, all of Japan, assignors to Teijin Limited, Osaka, Japan

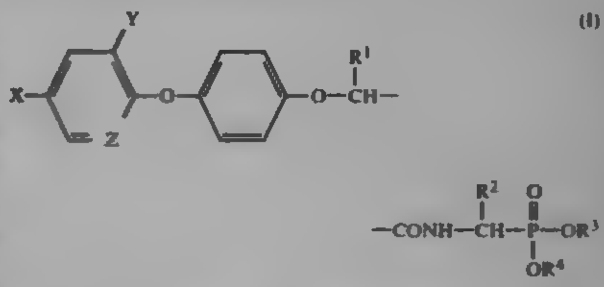
Filed Apr. 4, 1986, Ser. No. 848,118

Claims priority, application Japan, Dec. 24, 1985, 60-289435

Int. Cl.⁴ C07F *9/40, 9/58;* **A01N** *43/40, 57/06*

U.S. Cl. 71—86 8 Claims

1. A phenoxyalkanoylaminomethylphosphonic acid represented by the following formula (I)



(I)

wherein X and Y are identical or different and each represents a hydrogen atom, a halogen atom, CF_3 or an alkyl group having not more than 5 carbon atoms, Z represents CH or N, and R^1, R^2, R^3 and R^4 are identical or different and each represents a hydrogen atom or a lower alkyl group having 1 to 5 carbon atoms.

4. A method of eradicating weeds, which comprises applying the phenoxyalkanoylaminomethylphosphonic acid of formula (I) according to claim 1 to a locus where narrow-leaved weeds are growing or are likely to grow in an amount effective for eradicating the weeds.

4,755,210
METHOD FOR STERILIZING MALE PARTS OF PLANTS

Harry [illegible], Sittingbourne, England, assignor to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 523,227, Aug. 15, 1983, Pat. No. 4,555,260, Continuation-in-part of Ser. No. 395,525, Jul. 6, 1982, abandoned, and Ser. No. [illegible], Jul. 6, 1982, abandoned, and a continuation of Ser. No. 201,107, Oct. 28, 1980, abandoned, and Ser. No. 289,552, Aug. 3, 1981, abandoned. This application May [illegible], Ser. No. [illegible]

Claims priority, application United Kingdom, Nov. 16, 1979, [illegible]

The portion of the term of this patent subsequent to Nov. 26, [illegible], has been disclaimed.

Int. Cl.⁴ A01N *43/44*

U.S. Cl. 71—88 3 Claims

1. An agricultural composition of matter comprising essentially (a) an amount of 3-carboxyazetidine, a hydrate or salt

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thereof, effective to produce male sterility in cereal grain plants, together with (b) water as carrier and (c) a horticulturally acceptable surface-active agent.

4,755,211

HERBICIAL ORTHO-HETEROCYCLLIC [redacted]

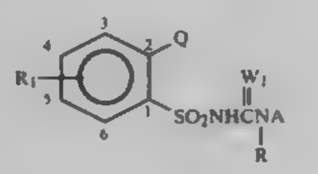
Mark E. Thompson, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 752,112, Jul. 9, 1985, Pat. No. 4,662,931, which is a continuation-in-part of Ser. No. 655,530, Sep. 28, 1984, abandoned. This application Jan. 29, 1987, Ser. No. 8,560

Int. Cl.⁴ A01N *43/66;* **C07D** *251/16, 251/52, 401/12*

U.S. Cl. 71—90 **36 Claims**

1. A compound of the formula



I

wherein

W_1 is O or S;

R is H or CH_3;

R_1 is H, C_1–C_3 alkyl, C_1–C_3 haloalkyl, C_1–C_3 haloalkoxy, halogen, nitro, C_1–C_3 alkoxy, $SO_2NR^{I}R^{II}$, C_1–C_3 alkylthio, C_1–C_3 alkylsulfinyl, C_1–C_3 haloalkylthio, C_1–C_3 alkylsulfonyl, CO_2R^{III}, amino, C_1–C_3 alkylamino, di(C_1–C_3alkyl)amino, CH_2CN, CH_2OCH_3 or CH_2SCH_3;

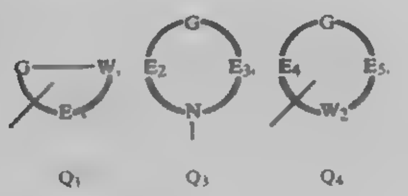
R^{I} is H, C_1–C_4 alkyl, C_2–C_3 cyanoalkyl, methoxy or ethoxy;

R^{II} is H, C_1–C_4 alkyl or C_3–C_4 alkenyl; or

R^{I} and R^{II} may be taken together as $—(CH_2)_3—$, $—(CH_2)_4—$, $—(CH_2)_5—$ or $—CH_2CH_2OCH_2CH_2—$;

R^{III} is C_1–C_4 alkyl, C_3–C_4 alkenyl, C_3–C_4 alkynyl, C_2–C_4 haloalkyl, C_2–C_3 cyanoalkyl, C_5–C_6 cycloalkyl, C_4–C_7 cycloalkylalkyl or C_2–C_4 alkoxyalkyl;

Q is



Q₁ Q₃ Q₄

G is C=O or SO_2;

W is O, S, CHR_2 or NR_3;

W_2 is O, S, SO_2, CHR_2 or NR_3;

R_2 is H, C_1–C_2 alkyl, Cl, F or Br;

R_3 is H, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_2–C_4 alkoxyalkyl, C_2–C_4 cyanoalkyl, C_3–C_4 alkenyl or C_3–C_4 alkynyl;

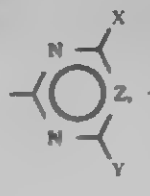
E is C_3–C_4 alkylene, C_3–C_4 alkenylene or C_4 alkenyldienyl;

E_2 and E_4 are independently C_1–C_2 alkylene or C_2 alkenylene;

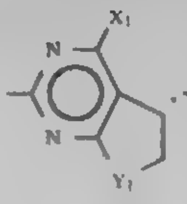
E_3 and E_5 are independently C_2–C_3 alkylene or C_2–C_3 alkenylene; and

E, E_2, E_3, E_4 and E_5 may optionally be substituted by 1–4 groups selected from C_1–C_4 alkyl, C_1–C_4 alkoxy, C_1–C_4 alkenyl, OH, halogen or C_1–C_4 haloalkoxy; further, when W is O, CHR_2 or NR_3, one of the carbon atoms of E may be in the form of a carbonyl group, and when W_2 is O, CHR_2 or NR_3, one of the carbon atoms of E_4 or E_5 may be in the form of a carbonyl group, provided that said carbonyl groups are not bonded directly to G:

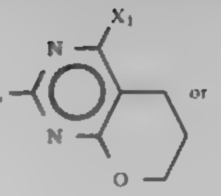
A is



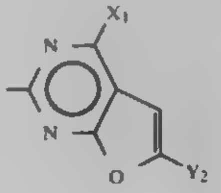
A-1



A-2



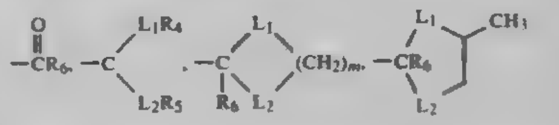
A-3



A-4

X is H, C_1–C_4 alkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_1–C_4 haloalkyl, C_1–C_4 haloalkylthio, C_1–C_4 alkylthio, halogen, C_2–C_5 alkoxyalkyl, C_2–C_5 alkoxyalkoxy, amino, C_1–C_3 alkylamino or di(C_1–C_3 alkyl)amino;

Y is H, C_1–C_4 alkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_1–C_4 haloalkylthio, C_1–C_4 alkylthio, halogen, C_2–C_5 alkoxyalkyl, C_2–C_5 alkoxyalkoxy, amino, C_1–C_3 alkylamino, di(C_1–C_3 alkyl)amino, C_3–C_4 alkenyloxy, C_3–C_4 alkynyloxy, C_2–C_5 alkylthioalkyl, C_1–C_4 haloalkyl, C_3–C_5 cycloalkyl, C_2–C_4 alkynyl,



$N(OCH_3)CH_3$, C_2–C_5 alkylsulfinylalkyl, or C_2–C_5 alkylsulfonylalkyl;

m is 2 or 3;

L_1 and L_2 are independently O or S;

R_4 and R_5 are independently C_1–C_2 alkyl;

R_6 is H or CH_3;

Z is N; and

X_3 is CH_3, or OCH_3;

and their agriculturally suitable salts; provided that

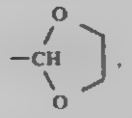
(a) when G is SO_2, then W is O, CHR_2 or NR_3;

(b) when E_2 or E_4 is C_2 alkylene or C_2 alkenylene, then E_3 or E_5 is C_2 alkylene or C_2 alkenylene;

(c) X and Y are other than CCF_2H;

(d) when the total number of carbon atoms of X and Y is greater than four, then the number of carbons of R_1 is less than or equal to two and the number of carbons of Q is less than or equal to eight; and

(e) when W_1 is S, then R is H, A is A-1, and Y is CH_3, OCH_3, OC_2H_5, CH_2OCH_3, C_2H_5, CF_3, SCH_3, $OCH_2CH{=}CH_2$, $OCH_2C{\equiv}CH$, $OCH_2CH_2OCH_3$, $CH(OCH_3)_2$ or



[redacted]

(f) when Q is Q_1, then Q_1 is bonded through a carbon atom of E.

17. An agriculturally suitable composition for controlling the growth of undesirable vegetation comprising an effective amount of a compound of claim 1 and at least one of the following: surfactant, solid or liquid diluent.

4,755,212

[redacted]

1,2,4-TRIAZOLO[1,5-A]PYRIMIDINE-2-SULFONAMIDES [redacted]

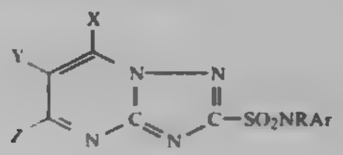
William A. Kleschick, Martinez; Ben C. Gerwick, III, Clayton, both of Calif.; Robert J. Ehr, Eden Prairie, Minn.; William T. Monte, Concord, Calif.; Norman R. Pearson, Walnut Creek, Calif.; Richard W. Meikle, Alamo, Calif., and Mark J. Costales, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 768,393, Aug. 22, 1985, abandoned, and a continuation-in-part of Ser. No. 551,758, Nov. 14, 1983, abandoned. This application Nov. 21, 1986, Ser. No. 934,271

Int. Cl.⁴ A01N *43/90;* **C07D** *475/00*

U.S. Cl. 71—92 **4 Claims**

1. Method for inhibiting pollen formation in corn which comprises the application of a pollen inhibiting amount of a compound having the formula:



I

wherein Ar represents an aromatic or heteroaromatic ring chosen from among phenyl; 1- or 2-naphthyl; 2-, 3- or 4-pyridyl; 2- or 3-thienyl; 2- or 3-furyl; 2-, 4- or 5-thiazoyl; 2-, 4- or 5-imidazoyl; 2-, 4- or 5-oxazoyl; 3-, 4- or 5-isothiazoyl; 3-, 4- or 5-isoxazoyl; 3-, 4- or 5-pyrazoyl; 2-benzthiazoyl; 2-benzoxazoyl, 2-benzimidazoyl or 1-benztriazoyl; and Ar is unsubstituted or Ar is substituted with one to five substituents chosen from among (except in the cases of thio, sulfinyl and sulfonyl substituents where if one of these substituents is present the other one to four Ar substituents may not be chosen from among the other two); oxycarbonyl substituents where the other one to four Ar substituents may not be chosen from among different oxycarbonyl; or aminocarbonyl substituents; where the other one to four Ar substituents may not be chosen from among different aminocarbonyl substituents; C_1–C_6 alkyl; halo; C_1–C_6 mono- or polyhaloalkyl; phenyl; hydroxy; C_1–C_6 alkoxy; C_1–C_6 mono- or polyhaloalkoxy; phenoxy; phenoxy substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; 2-pyridyloxy; 2-pyridyloxy substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; C_1–C_6 alkylamino; C_1–C_6 dialkylamino; nitro; C_1–C_6 alkylthio; C_1–C_6 polyhaloalkylthio; C_1–C_6 alkylsulfinyl; C_1–C_6 polyhaloalkylsulfinyl; C_1–C_6 alkylsulfonyl; C_1–C_6 polyhaloalkylsulfonyl; phenylthio; phenylthio substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; phenylsulfinyl; phenylsulfinyl substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; phenylsulfonyl; phenylsulfonyl substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; cyano; carboxyl; C_1–C_{10} alkoxycarbonyl; phenoxycarbonyl; phenoxycarbonyl substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; alkoxyalkoxycarbonyl wherein the number of carbons in the alkoxyalkoxy fragment ranges from 2–10 and the number of oxygens in the alkoxyalkoxy fragment ranges from 2–4; 2-pyridylmethoxycarbonyl; dialkylaminoalkoxycarbonyl wherein the number of carbons in the dialkyl aminoalkoxy fragment ranges from 3–10 and the number of oxygens in the dialkylaminoalkoxy fragment is one; C_1–C_6 alkenyloxycarbonyl; $COON{=}C(R^1)(R^2)$ wherein R^1 and R^2 independently represent hydrogen, C_1–C_6 alkyl or phenyl; unsubstituted, N—C_1–C_6 alkyl or N,N-di-C_1–C_6 alkylaminocarbonyl; C_1–C_{10} dialkylaminosulfonyl; formyl; C_1–C_6 alkylcarbonyl; C_1–C_6 mono- or polyhaloalkylcarbonyl; phenylcarbonyl; phenylcarbonyl substituted with one or more of groups chosen from halo, C_1–C_6 alkyl or C_1–C_6 haloalkyl; or $C(R^3)(R^4)OR^5$ wherein R^3 and R^4 independently represent hydrogen or C_1–C_6 alkyl and R^5 represents hydrogen, C_1–C_6 alkyl, benzyl, phenylcarbonyl or C_1–C_6 alkylcarbonyl; X, Y and Z independently represent hydroxyl, carboxyl, hydrogen, C_1–C_6 alkyl, C_1–C_6 mono- or polyhaloalkyl, C_1–C_6 alkoxy, C_1–C_6 mono- or polyhaloalkoxy, phenyl, phenyl substituted with one or more groups chosen from halo, nitro, C_1–C_6 alkyl or C_1–C_6 mono- or polyhaloalkyl, C_1–C_6 alkylthio, halogen, or two adjacent substituents (i.e. X and Y or Y and Z) are joined together to form a saturated five, six or seven-membered saturated cyclic structure of carbon atoms or one carbon atom of X,Y or Y,Z is replaced by a heteroatom chosen from among nitrogen, oxygen or sulfur (i.e. X,Y or Y,Z is $—(CH_2)_n—$ wherein n is 3, 4 or 5; or X,Y or Y,Z is $—(CH_2)_n—A—(CH_2)_m$ wherein n is 0–4, the value of m is equal to the ring size minus (n+3) and A is NH, O or S) and R represents alkyl, alkenyl, alkynyl, phenylalkyl, acyl, alkoxycarbonyl, phenoxycarbonyl, dialkylaminocarbonyl, alkylsulfonyl, phenylsulfonyl, alkylthiocarbonyl or phenylthiocarbonyl wherein alkyl, alkenyl, alkynyl and alkoxy in each instance have from 1 to 10 carbon atoms.

4,755,213

1-PHENYLIMIDAZOLECARBOXYLIC ACID AMIDES AND THEIR USE AS GROWTH REGULATORS

Roland Schmierer, Todtenweis; Reinhard Handte, Gablingen; Hilmar Mildenberger, Kelkheim, and Helmut Bürstell, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

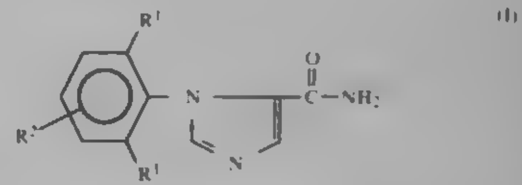
Filed Mar. 10, 1987, Ser. No. 24,357

Claims priority, application Fed. Rep. of Germany, Mar. 12, [redacted]

Int. Cl.⁴ A01N *43/50;* **C07D** *233/90*

U.S. Cl. 71—92 **5 Claims**

1. A compound of the formula I



(I)

in which

the radicals R^1 independently of one another denote (C_1–C_3)alkyl and

R^2 denotes H, methyl or halogen, or an agriculturally acceptable salt thereof.

5. A method for regulating the growth of plants, which comprises applying an effective amount of a compound of the formula (I) as claimed in claim 1 to the plants or the cultivation [redacted]

4,755,214

COMPOSITION FOR REGULATING PLANT GROWTH

Kazuo Izumi, Takarazuka, and Hiromichi Oshio, Osaka, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation of Ser. No. 604,597, Apr. 27, 1984, abandoned. This application Nov. 15, 1985, Ser. No. 798,349

Claims priority, application Japan, May 6, 1983, 58-79874; May 6, 1983, 58-79875

Int. Cl.⁴ A01N *43/64*

U.S. Cl. 71—92 **8 Claims**

1. A composition for retarding the growth of plants which comprises as active ingredients an effective amount of (E)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4,-triazol-1-yl)-1-pentene-3-ol and one or more compounds selected from the group consisting of 2-chloro-4,6-bis-(ethylamino)-s-triazine, 2-chloro-4-ethylamino-6-isopropylamino-s-triazine and a phenoxyacetic acid type compound represented by the formula.

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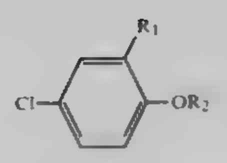


wherein R_1 represents a chlorine atom or methyl group, and R_2 represents a carboxymethyl, carboxyethyl or carboxypropyl group, in an amount of 1 to 8 parts by weight based on 1 part of weight of (E)-1-(4-chlorophenyl)-4,4,-dimethyl-2-(1,2,4-triazol-1-yl)-1-pentene-3-ol, and an inert carrier.

4,755,215

BENZOTRIAZOLES, AND THEIR PRODUCTION AND USE

Toru Haga, Takarazuka; Eiki Nagano, Nishinomiya; Ryo Sato, and Kouichi Morita, both of Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

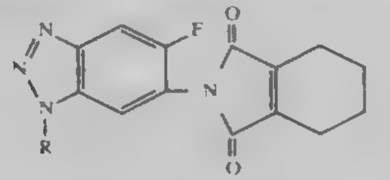
Filed Jan. 14, 1986, Ser. No. 818,812

Claims priority, application Japan, Jan. 14, 1985, 60-004379

Int. Cl.⁴ A01N *43/38, 43/707;* **C07D** *403/04*

U.S. Cl. 71—92 **11 Claims**

1. A compound of the formula:



wherein R is a C_1–C_5 alkyl group, a C_3–C_5 alkenyl group, a C_3–C_5 alkynyl group or a C_3–C_7 cycloalkyl group.

4,755,216

AGRICULTURAL SULFONAMIDES

George Levitt, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

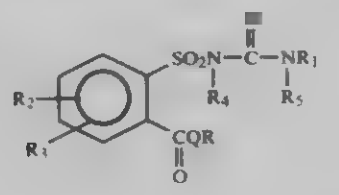
Division of Ser. No. 452,106, Dec. 22, 1982, Pat. No. 4,952,978, which is a continuation-in-part of Ser. No. 29,281, Apr. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 15,341, Mar. 1, 1979, abandoned, which is a continuation-in-part of Ser. No. 965,070, Nov. 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 910,965, May 30, 1978, abandoned. This application Apr. 18, 1986, Ser. No. 830,510

The portion of the term of this patent subsequent to Jan. 14, 2003, has been disclaimed.

Int. Cl.⁴ A01N *43/54*

U.S. Cl. 71—92 **44 Claims**

1. A composition suitable for controlling the growth of undesired vegetation which comprises an effective amount of a compound selected from



wherein

Q is O

R is C_1–C_{12} alkyl; C_3–C_{10} alkenyl; C_3–C_{10} alkynyl; C_2–C_6 alkyl substituted with 1–4 substituents selected from (a) 0–3 atoms of F, Cl or Br, (b) 0–2 OCH_3 groups or (c) 0–1 cyano groups;

R is also CH_2CN; $CH(R_7')CO_2CH_3$; $CH(R_7')CO_2C_2H_5$; C_3–C_6 alkenyl substituted with 1–3 atoms of F, Cl or Br;

R is also C_3–C_6 alkynyl substituted with one of F, Cl or Br;

R is also C_5–C_8 cycloalkyl; C_5–C_8 cycloalkenyl; C_5–C_6 cycloalkyl substituted with (a) OCH_3, (b) C_2–C_4 alkyl, (c) F, Cl or Br or (d) 1–4 CH_3 groups;

R is also C_4–C_{10} cycloalkylalkyl; C_4–C_8 cycloalkylalkyl substituted with 1–2 CH_3 groups;

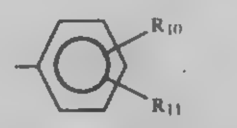
R is also C_7–C_{10} bicycloalkyl; C_7–C_{10} bicylcoalkenyl; C_{10} tricycloalkyl; C_{10} tricycloalkenyl;

R_7' is H or CH_3;

R is also H; M; $CH_2CH_2OR_7$; $CH_2CH_2CH_2OR_7$; $CH(CH_3)CH_2OR_7$; CH_2OR_8'; $(CH_2CH_2O)_{n'}R_8$; $(CH(CH_3)CH_2O)_{n'}R_8$; $CH_2CH_2S(O)_{0,2}R_{12}$; $CH_2CH_2CH_2S(O)_{0,2}R_{12}$; where

R_7 is CH_2CH_3, $CH(CH_3)_2$, phenyl, CH_2CH_2Cl or CH_2CCl_3;

R_8' is CH_3, CH_2CH_3, $CH(CH_3)_2$, CH_2CH_2Cl, CH_2CCl_3, phenyl,



$CH_2CH_2OCH_3$ or $CH_2CH_2OCH_2CH_3$;

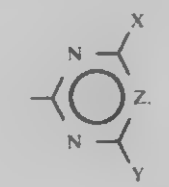
R_8 is CH_3, CH_2CH_3, $CH(CH_3)_2$, phenyl, CH_2CH_2Cl or CH_2CCl_3;

n' is 2 or 3;

R_{10} and R_{11} are independently H, C_1–C_3 alkyl, Cl, Br, OCH_3 or OC_2H_5;

R_{12} is CH_3, CH_2CH_3, $CH(CH_3)_2$ or phenyl;

R_1 is



R_2 is H, Cl, Br, F, C_1–C_3 alkyl, NO_2, SO_2CH_3, OCH_3, SCH_3, CF_3, $N(CH_3)_2$, NH_2 or CN;

R_3 is H, Cl, Br, F or CH_3;

R_4 is H or CH_3;

R_5 is H, CH_3 or OCH_3;

M is an alkali metal;

W is O or S;

X is H, Cl, CH_3, OCH_3, OCH_2CH_3 or $OCH_2CH_2OCH_3$;

Y is H; F; Cl; Br; C_1–C_4 alkyl; C_1–C_4 alkyl substituted with (a) OCH_3, (b) OC_2H_5, (c) CN or (d) 1–3 atoms of F, Cl or Br;

Y is also C_3–C_4 alkenyl; $CH_2C{\equiv}CR_{13}$; $A(CH_2)_{n'}A_1$-(C_1–C_3 alkyl); SCN; N_3; $NR_{16}R_{17}$; OR_{14} or SR_{15};

R_{13} is H, CH_3 or CH_2Cl;

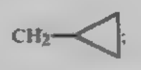
n' is as previously defined, A is O or S and A_1 is O, S or SO_2;

R_{16} is H or CH_3;

R_{17} is H, OCH_3, C_1–C_6 alkyl, C_1–C_4 alkyl substituted with CN;

R_{17} is also C_3–C_4 alkenyl, C_3–C_6 cycloalkyl or C_2–C_3 alkyl substituted with (a) OCH_3 or (b) OC_2H_5;

R_{14} is C_1–C_4 alkyl; C_2–C_4 alkyl substituted with 1–3 atoms of F, Cl or Br; C_1–C_4 alkyl substituted with CN; C_3–C_4 alkenyl; $CH_2C{\equiv}CR_{13}$; or



R_{15} is C_1–C_4 alkyl, allyl, propargyl or C_1–C_2 alkyl substituted with CN;

Z is CH;

provided that

(a) when Y has greater than or equal to 4 carbon atoms, then R has less than or equal to 4 carbon atoms;

(b) when X is Cl, then Y is Cl and when X and Y are both H, then R has less than or equal to 4 carbon atoms; and

(c) when W is O, R is C_1–C_4 alkyl; R_2, R_3 and R_4 are H; R_5 is H or CH_3; and X is H, CH_3, OCH_3 or OC_2H_5, then Y cannot be H, Cl, CH_3, OCH_3 or OC_2H_5;

and at least one of the following: surfactant, solid or liquid diluent.

4,755,217

TRIAZINEDIONE HERBICIDES

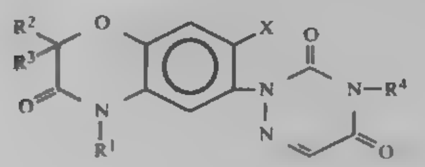
Jun H. Chang, Princeton Junction, and John W. Lyga, Basking Ridge, both of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 3,448, Jan. 15, 1987, abandoned. This application Jul. 31, 1987, Ser. No. 81,639

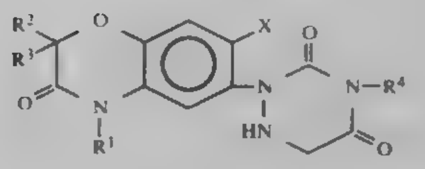
Int. Cl.⁴ A01N *43/84;* **C07D** *413/04*

U.S. Cl. 71—93 **10 Claims**

1. Compound of the formula



or



in which R^1 is H, alkyl, alkenyl, alkynyl, haloalkyl, haloalkenyl, haloalkynyl, alkoxyalkyl, alkoxyalkoxyalkyl, alkyl, cycloalkyl, aralkyl, alkylthioalkyl, hydroxy or alkoxy;

R^2 R^3 are independently H or alkyl;

X is H, Cl or F;

R^4 is alkyl, haloalkyl, alkenyl or alkynyl.

7. An herbicidal composition comprising an herbicidally effective amount of the compound of claim 1 in admixture with a suitable carrier.

4,755,218

HALOACYL 1-SUBSTITUTED-1,2,3,4-TETRAHYDRO-ISOQUINOLINES AS HERBICIDE ANTIDOTES

Gerhard H. Alt, University City; Harrison R. Hakes, Ballwin, and Ronald J. Brinker, St. Louis County, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 31, 1985, Ser. No. 815,101

Int. Cl.⁴ A01N *43/40*

U.S. Cl. 71—94 **3 Claims**

2. A method for reducing herbicide injury to corn due to acetochlor, which comprises applying to the corn locus a herbicidal composition comprising a herbicidally-effective amount of acetochlor and an antidotally-effective amount of the compound 2-(dichloroacetyl)-1-methyl-1,2,3,4-tetrahydroisoquinoline, the herbicide:antidote ratio being within the range of about 2:1 to 50:1

4,755,219

PROCESS FOR PRODUCING MOLTEN PIG IRON OR STEEL RAW MATERIAL

Rolf Hauk, Düsseldorf, Fed. Rep. of Germany, assignor to Korf Engineering GmbH, Dusseldorf, Fed. Rep. of Germany

Filed Jan. 14, 1987, Ser. No. 3,277

Claims priority, application Fed. Rep. of Germany, Feb. 5, [illegible]

Int. Cl.⁴ C22B *4/00, 1/10*

U.S. Cl. 75—10.22 **6 Claims**

1. A method of producing molten pig iron or steel raw material from iron oxide containing raw material particles, comprising the steps of: forming a fluidized bed of carbonaceous solid particles and an oxygen-containing carrier gas; introducing the iron oxide containing raw material particles into the fluidized bed from above; introducing the oxygen container carrier gas into the fluidized bed at a horizontal level located in a lower region of the fluidized bed; heating, reducing, and melting the iron oxide containing particles when passing through the fluidized bed, and plasma heating the fluidized bed by supplying a plasma-forming gas to the bed essentially at said horizontal level.

4,755,220

MATERIALS RESISTANT TO METAL AND SALT MELTS, THEIR PRODUCTION AND THEIR USE

Peter Woditsch, Krefeld; Werner Kannchen, Duisburg; Horst Lange, and Ingo Schwirtlich, both of Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 6, 1987, Ser. No. 117,329

Claims priority, application Fed. Rep. of Germany, Nov. 18, 1986, 3639335

Int. Cl.⁴ C22C *29/12*

U.S. Cl. 75—233 **16 Claims**

1. A material resistant to high temperature melts of metal and salt which comprises a composite material containing silicon nitride, silicon oxynitride, silicon dioxide and silicon

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4,755,221

ALUMINUM BASED COMPOSITE POWDERS AND PROCESS FOR PRODUCING SAME

Muktesh Paliwal, Sayre, and Walter A. Johnson, Towanda, both of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Mar. 24, 1986, Ser. No. 843,440

Int. Cl.⁴ C22C *29/14*

U.S. Cl. 75—244 **8 Claims**

1. Composite powder particles consisting essentially of particles of a matrix, said matrix consisting essentially of a metal selected from the group consisting of aluminum and aluminum based alloys and a reinforcement phase which is relatively

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uniformly dispersed in and bonded to said matrix, said reinforcement phase comprising titanium diboride, said composite particles being essentially spheres.

4,755,222
SINTER ALLOYS BASED ON HIGH-SPEED STEEL

Barbara Heinze; Hans-Peter Koch, both of Stuttgart; Gundmar Lenze, Heimsheim, and Hans Obenaus, Leonberg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE86/00239, § 371 Date Feb. 17, 1987, § 102(e) Date Feb. 17, 1987, PCT Pub. No. WO87/00207, PCT Pub. Date Jan. 15, 1987

PCT Filed Jun. 7, 1986, Ser. No. 30,870

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1985, 3523398

Int. Cl.⁴ C22C *23/00*

U.S. Cl. 75—246 **4 Claims**

1. Sinter alloys based on high-speed steel comprising a sintered mixture of (i) a powder of a high-speed steel and (ii) an unalloyed or low-alloy iron powder that does not form a liquid phase, said iron powder containing about 0.1% to about 0.5% carbon, with said high speed steel powder being present in said mixture in the amount of up to approximately 50% by weight, said sinter alloy in compacted form being characterized by high dimensional accuracy when sintered.

4,755,223
LIQUID COMPOSITION FOR CLEANING AND POLISHING CYMBALS COMPRISING KAOLIN CLAY

Antonio Castaldo, 1170 Klockner Rd., Trenton, N.J. 08619

Continuation-in-part of Ser. No. 899,202, Aug. 22, 1986, Pat. No. 4,687,591. This application Aug. 17, 1987, Ser. No. 86,939

Int. Cl.⁴ C11D *1/24, 3/14*

U.S. Cl. 106—3 **2 Claims**

1. A liquid composition for cleaning and polishing cymbals comprised by weight of:

(a) between 15 and 25 percent of a finely divided Kaolin clay,
(b) between 4 and 8 percent of sodium chloride,
(c) between 1 and 3 percent of a disulfonated alkyl aryl ether surfactant having electrolyte tolerance,
(d) a minimum effective quantity of a colloidal foam suppressing substance, and
(e) the balance being water,

said composition having a pH in the range of 6.5 to 7.5, and being confined within a squeeze bottle equipped with a dispensing nozzle

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4,755,224
CORROSION RESISTANT ALUMINUM COATING COMPOSITION

John W. Bibber, Batavia, Ill., assignor to Sanchem, Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 908,827, Sep. 18, 1986, Pat. No. 4,711,667. This application Aug. 17, 1987, Ser. No. 86,362

Int. Cl.⁴ C23F *11/18*

U.S. Cl. 106—14.21 **38 Claims**

15. A method of protecting aluminum and aluminum alloys with an alkali metal permanganate protective coating comprising cleaning the aluminum or aluminum alloy surface with a nonionic non-interfering surfactant selected from polyoxyethylene or polyoxypropylene derivatives of organic acids, alcohols, alkyphenols or amines contacting the cleaned aluminum or alloy with an aqueous alkali metal permanganate solution having a pH in the range of 7 to less than 12.5, forming a conversion coating on the aluminum or alloy, and removing any excess coating solution from the aluminum or alloy.

17. The method of claim 15 wherein the permanganate solution also contains as an essential ingredient a compound selected from alkali metal tetraborate, alkali metal metaborate, alkali metal carbonates, benzoic acid, alkali metal benzoate, mixtures of alkali metal meta-and tetraborate, and the hydrated alkali metal meta and/or tetraborate.

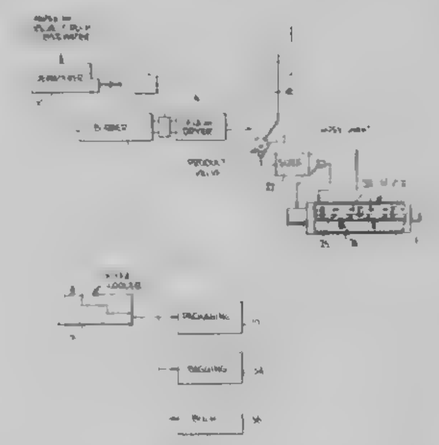
4,755,225
CELLULOSIC-BASED PARTICULATE INSULATION AND METHOD OF MANUFACTURING SAME

Norman W. Pruitt, 3501 Launcelot Way, Annandale, Va. 22003

Filed Aug. 26, 1985, Ser. No. 769,067

Int. Cl.⁴ C09D *5/14*

U.S. Cl. 106—15.05 **13 Claims**



1. A flame and combustion retardant insulation comprising particulate cellulosic pulp rejects which have been expanded and rendered porous by flash-drying pulp rejects having a water content of from about 40 to 70% at a temperature of from about 400° to 700° F., impregnated or coated with up to about 40% of the flash-dried volume of said rejects with a flame or combustion retardant material.

4,755,226
SEALING AND/OR STABILIZING AND/OR BINDING PREPARATIONS COMPRISING ALKALI METAL SILICATE SOLUTIONS

Wolfgang Friedemann, Neuss; Wolfgang Pesch, Grevenbroich, and Kurt Feulner, Essen, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany

Filed Feb. 5, 1987, Ser. No. 11,174

Claims priority, application European Pat. Off., Feb. 5, 1986, [illegible]

Int. Cl.⁴ C04B *12/04*

U.S. Cl. 106—84 **20 Claims**

1. A sealing, stabilizing, and binding preparation comprising a modified alkali metal silicate solution, said alkali metal silicate solution having a molar ratio of SiO_2 to Me_2O of from about 2 to about 4.5, wherein Me represents sodium or potassium; sodium metaborate and/or potassium metaborate in a molar ratio of SiO_2 to B_2O_3 of from about 5 to about 400; and glyoxal; said SiO_2 being present in a quantity of up to about 30% by weight, and said glyoxal being present in a quantity of from about 0.4% to about 12% by weight, based on the weight of said preparation.

4,755,227
PRODUCTION OF SOLID PHOSPHORUS PENTIOXIDE CONTAINING MATERIALS FOR FAST-SETTING CEMENTS

Fawzy G. Sherif, Stony Point, and Francis A. Via, Yorktown Heights, both of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 617,317, Jun. 7, 1984, abandoned, which is a continuation-in-part of Ser. No. 522,077, Aug. 11, 1983, abandoned. This application Oct. 17, 1985, Ser. No. [illegible]

Int. Cl.⁴ C04B *7/00;* **C09D** *1/00*

U.S. Cl. 106—85 **19 Claims**

1. A process for producing solid phosphorus pentoxide-containing material suitable for use in producing a fast-setting, predominantly magnesium phosphate cement which comprises mixing a porous, inert material with a sufficient amount of liquid, phosphorus pentoxide-containing material to form at least a paste, said inert material containing substantially no alumina reactive with the liquid, phosphorus pentoxide-containing material, and heating the resulting mixture, prior to addition of a magnesium-containing material, to produce therefrom a dry solid capable of further reaction with magnesium-containing material and water at ambient temperature to form a solid, predominantly magnesium phosphate cement having a compressive strength of at least 5[illegible] psi in less than two hours.

4,755,228
MOLDING MATERIAL

Seiji Sakurai, and Kaoru Umino, both of Kanagawa, Japan, assignors to Nichias Corporation, Tokyo, Japan

Filed May 12, 1987, Ser. No. 48,842

Claims priority, application Japan, May 12, 1986, 61-106696

Int. Cl.⁴ C04B *7/32*

U.S. Cl. 106—104 **4 Claims**

1. A molding material for manufacture of lining materials and receptacles for use with a low-melting point metal casting apparatus consisting essentially of a mixture of 0.1–7 wt% glass fibers, 20–60 wt% of wollastonite fibers, and 40–80 wt% of calcium aluminate cement.

4,755,229
COLORED MICACEOUS PIGMENTS

Louis Armanini, Pleasantville, N.Y., assignor to The Mearl Corporation, Ossining, N.Y.

Filed Feb. 9, 1987, Ser. No. 12,185

Int. Cl.⁴ C04B *14/20*

U.S. Cl. 106—413 **21 Claims**

1. A colored micaceous pigment comprising micaceous platelets coated with a layer comprising hydrous oxide or hydroxide of a polyvalent cation, precipitate of said polyvalent cation and an anionic polymeric substance, and water-insoluble colored pigment, the percentages of said cation, substance and pigment based on the weight of said micaceous pigment being 0.01–20, 0.01–20 and 0.01–30, respectively.

4,755,230
METHOD OF AND COMPOSITION FOR REMOVING PARAFFIN DEPOSITS FROM HYDROCARBON TRANSMISSION CONDUITS

Jefferson P. Ashton, Conroe; Hal W. McSpadden, Woodlands; Tara T. Velasco, and Hang T. Nguyen, both of Houston, all of Tex., assignors to Baker Oil Tools, Inc., Orange, Calif.

Continuation of Ser. No. 691,617, Jan. 15, 1985, abandoned. This application Apr. 10, 1987, Ser. No. 36,883

Int. Cl.⁴ C23G *5/036, 5/024*

U.S. Cl. 134—22.14 **4 Claims**

1. A method of removing paraffin deposits from the interior of a generally horizontal isolated length of a hydrocarbon transmission conduit, comprising the steps of:

(1) introducing into the isolated length of the conduit containing the paraffin deposits, a pre-determinable amount of an oil-in-water emulsified mixture of an aqueous solution and a hydrocarbon solution, the aqueous solution comprising:
  (a) in-situ nitrogen-generating components reactable to produce exothermic heat and nitrogen gas;
  (b) a pre-computed amount of a buffered pH adjuster to produce a buffered pH value for the aqueous solution to abate the reaction rate of the in-situ nitrogen-generating components to a level permitting flow of said components into and along the isolated length to cover the paraffin deposits prior to completion of any significant portion of the exothermic reaction, thereby effecting temperature melting of the paraffin deposits in the generally horizontal isolated length by the exothermic heat of the nitrogen-generating reactions;
  (c) the hydrocarbon solution comprising:
    (a) a paraffin-dissolving amount of an aromatic solvent selected to dissolve the particular paraffins in the isolated length resulting from temperature melting of the paraffin deposit by the exothermic in-situ production of nitrogen; and
    (b) a pour-point depressing amount of a crystalline modifier selected to produce a minimum pour-point for the paraffins constituting the deposit to be removed to retain the dissolved paraffins in solution at the ambient temperature of the isolated conduit section,

whereby the free nitrogen produced by the reaction of the nitrogen-generating components effects an agitation of the solutions to assist the dissolution of the melted paraffin in the aromatic solvent; and

(2) then removing the solutions containing the dissolved paraffins from the isolated conduit section.

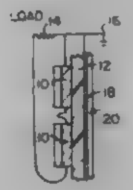
4,755,231
FLEXIBLE SOLAR ARRAY CELL AND SUBSTRATE [illegible]

Richard M. Kurland, Sherman Oaks; Ira L. Allard, Rancho Palos Verdes; Rebecca C. Chaky, Moorpark, and George T. Inouye, deceased, late of Rancho Palos Verdes, all of Calif. (by Marlene M. Inouye, executrix), assignors to TRW Inc., [illegible] Beach, Calif.

Filed Jan. 13, 1986, Ser. No. 873,895

Int. Cl.⁴ H01L *25/02, 27/14*

U.S. Cl. 136—244 **9 Claims**



2. A flexible, lightweight solar array, comprising:
an array of interconnected solar cells;
flexible plastic substrate means supporting the array of solar cells on its front face; and
additional means formed integrally with the substrate, for providing a ground path for electric charge building up on the rear face of the substrate and for providing a suitable heat emissive surface at the rear face, the additional means including an impregnation of conductive material within the substrate means, to provide the necessary path for accumulated electric charge and to provide the necessary color to the rear surface of the substrate means.

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4,755,232

METHOD AND APPARATUS FOR MECHANICALLY CONTROLLING THE FLAME CUTTING AND/OR CONNECTION WELDING OF WORKPIECES

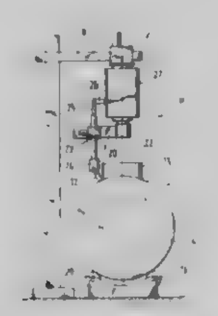
Gustav Thönes, and Paul Roll, both of Gummersbach, Fed. Rep. of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

Filed Feb. 4, 1986, Ser. No. 825,809

Claims priority, application Fed. Rep. of Germany, Feb. 4, [illegible]

Int. Cl.⁴ B23K *7/04, 7/10*

U.S. Cl. 148—9 R **16 Claims**



1. A method for controlled flame-cutting burning-out of a hole of a workpiece with a curved surface and a welding-in of a cylindrical second workpiece into the hole, with which during the flame cutting out respectively welding, the required tool is pivoted about an axis of the second workpiece and is moved corresponding to a circumferential line of the second workpiece parallel to the axis of the second workpiece, especially for flame cutting-out of connecting-member holes, in vessels, containers, tanks and the like, for connecting members, and the welding-in of connecting members into the connecting-member holes: said method comprising the steps of:

sensing the contour of said first workpiece upon the circumferential line of the second workpiece before the burning-out upon the surface of the first workpiece, said sensing of the circumferential line serving for additionally controlling movement of a tool parallel to an axis of the second workpiece, and

recording data of the sensed contour upon a recording carrier, said recording of data occurring due to sensing during flame cutting out as well as welding.

4,755,233

HEAT TREATMENT PROCESS FOR STAINLESS STEEL WIRE ROD

Giovanni Buralis, Turin; Fabio Guglielmi, Rome, and Giovanni Lanfranco, Saint Vincent, all of Italy, assignors to Centro [illegible] Metallurgico SpA, Rome, Italy

Filed Jul. 16, 1986, Ser. No. 886,101

Claims priority, application Italy, Aug. 1, 1985, 48439 A/85

Int. Cl.⁴ C21D *8/06*

U.S. Cl. 148—12 B **2 Claims**

1. A process for heat treatment of austenitic and ferritic stainless steel wire rod, comprising the following steps:

rolling a said stainless steel wire rod with a finishing-rolling temperature (FRT) between 850° C. and 1050° C.;

immediately thereafter holding said rod at a temperature between FRT −50° C. and FRT +100° C. for 2 to 30 minutes; and

water cooling the rod.

4,755,234

METHOD OF MANUFACTURING PRESSURE VESSEL STEEL WITH HIGH STRENGTH AND TOUGHNESS

Haruo Suzuki, Tokyo; Toshio Takano, Yokohama; Koshiro Tsukada, Yokohama, and Hiroaki Tsukamoto, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 762,964, Aug. 6, 1985, abandoned. This application May 26, 1987, Ser. No. 56,264

Claims priority, application Japan, Aug. 9, 1984, 59-165580

Int. Cl.⁴ C21D *8/00*

U.S. Cl. 148—12 F **8 Claims**

1. A method of manufacturing Cr-Mo pressure vessel steel having high strength and high toughness comprising the steps of

heating Cr-Mo steel to a temperature higher than 1200° C., said Cr-Mo steel containing from 0.03 to 0.12 wt.% C, 0.10 to 0.8 wt.% Si, 0.45 to 1.00 wt.% Mn, 0.80 to 3.50 wt.% Cr, 0.4 to 1.60 wt.% Mo, with said Cr and said Mo being associated such that when said Cr is about 0.8% to about 1.8%, said Mo is about 0.4% to about 0.8% and when said Cr is about 1.8% to about 3.5%, said Mo is about 0.8% to about 1.2%, 0.10 to 0.53 wt.% Ni, 0.010 to 0.040 wt% soluble aluminum, at least one of 0.05 to 0.40 wt.% V and 0.02 to 0.20 wt.% Nb, less than 0.010 wt% Ti, 0.0002 to 0.0010 wt.% B, and less than 0.004 wt.% N, the balance of iron and impurities, the N and Ti satisfying the following equation

$$N < 14/48 \times Ti + 0.0024\%,$$

rolling the heated steel to obtain a total reduction of more than 30% at a temperature above 1050° C. and finishing the rolling above or below 1050° C.;

directly quenching the rolled steel; and

tempering the rolled steel.

4,755,235

ELECTRICALLY CONDUCTIVE PRECIPITATION HARDENED COPPER ALLOY AND A METHOD FOR MANUFACTURING THE SAME

Seiko Matidori, Tokyo, and Masato Sakai, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Continuation of Ser. No. 537,162, Sep. 30, 1983, abandoned, which is a continuation of Ser. No. 169,746, Jul. 17, 1970, abandoned. This application Mar. 17, 1986, Ser. No. 840,994

Claims priority, application Japan, Jul. 30, 1979, 54-96067

Int. Cl.⁴ C22C *9/00;* **C22F** *1/08*

U.S. Cl. 148—12.7 C **16 Claims**

1. An electrically conductive precipitation hardened copper alloy material consisting of 0.05–1.5% by weight of chromium and optionally 0.05–0.5% by weight of zirconium, the balance copper, said copper alloy having a grain size number not less than 8 as defined by ASTM E112, having a minimum electrical conductivity of about 88 (IACS%), and a minimum offset yield stress of about 22 kg/mm^2.

4,755,236

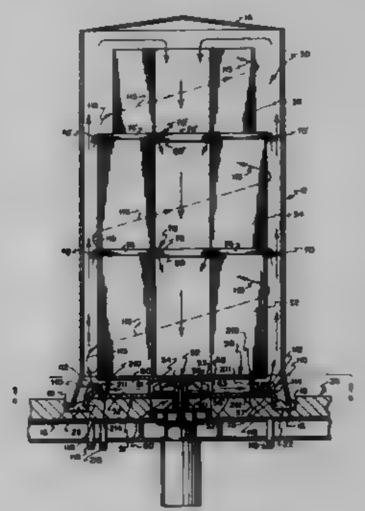
METHOD OF ANNEALING USING DIFFUSER SYSTEM FOR ANNEALING FURNACE WITH WATER COOLED BASE

Gary L. Coble, 12065 Greenwich Rd., Homerville, Ohio 44234

Division of Ser. No. 732,400, May 9, 1985, Pat. No. 4,611,791, which is a continuation-in-part of Ser. No. 456,823, Jan. 10, 1983, Pat. No. 4,516,758. This application Sep. 15, 1986, Ser. No. 907,473

Int. Cl.⁴ C21D *1/26*

U.S. Cl. 148—13 **18 Claims**



1. A method of carrying out an annealing process in a closed, controlled environemet of an annealing furnace, comprising the steps of:

- (a) providing a convection diffuser and charge support system for supporting a charge of metal to be annealed within an annealing furnace, including:
  - (i) a generally annular base structure having inner and outer portions that define substantially concentric circles that are radially spaced one from the other, the base structure being formed from at least one base structure casting, the base structure defining a bottom wall, a top wall, a plurality of curved vane structures that extend substantially vertically between the top and bottom walls to define an array of curved, substantially horizontally extending flow passages which underlie and are shielded from above by the top wall of the base structure, with the top and bottom walls of the base structure being of generally annular configuration when viewed from above, and with the horizontally extending flow passages having inner and outer openings near the inner and outer portions of the base structure;
  - (ii) the base structure defining upwardly facing means extending in a common horizontal plane for receiving and supporting a charge of material to be annealed, which charge is generally annular in configuration when viewed from above;
  - (iii) a base-encircling outer ring means separately formed from at least one relatively massive outer ring structure casting, the outer ring means being configured and disposed to surround peripheral portions of the base structure, the outer ring means defining an array of curved, upwardly-opening flow passages which cooperate with the horizontally extending flow passages of the base structure for ducting gases that discharge from the horizontally extending flow passages upwardly along generally helical paths of flow about a charge of material which is positioned atop the base structure for annealing;
  - (iv) at least one outer ring cooling conduit within the at least one outer ring structure casting for ducting cooling fluid therethrough, the outer ring cooling conduit being disposed in the at least one outer ring structure casting in non-obstructing relation to the curved, upwardly opening flow passages;
  - (v) a base-encircling inner ring means separately formed from at least one ring structure element and being configured and disposed to surround peripheral portions of the base structure at a location between the horizontally extending flow passages of the base structure and the curved, upwardly opening flow passages of the outer ring means, and having a plurality of fin elements projecting therefrom into paths of flow that are followed by gases discharging from the horizontally extending flow passages toward the curved, upwardly opening flow passages; and,
  - (vi) at least one inner ring cooling conduit connected to the fin elements for ducting cooling fluid therethrough; and,
- (b) after a charge of metal to be annealed has been positioned atop the charge support structure and heated to effect annealing, with the charge and the support structure being positioned within a closed controlled environment with heated gases being circulated therein about the charge as by causing the gases to flow through the horizontally extending flow passages and thence through the curved, upwardly opening flow passages for discharge upwardly along generally helically extending paths of travel, permitting the charge and the gases within the closed controlled environment to cool in the absence of continued heating of the charge until the gases reach a first temperature, whereupon further cooling of the gases and the charge is effected by:
  - (i) establishing a flow of cooling fluid through the outer ring cooling conduit to gradually lower the temperature of the outer cooling ring means and to enable the outer cooling ring means to withdraw heat energy from the gases that circulate within the closed controlled environment;
  - (ii) when the temperature of the gases is diminished to a second temperature that is less than the first temperature, establishing a flow of cooling fluid through the inner ring cooling conduit to enable the inner cooling ring means to supplement the heat withdrawal action of the outer cooling ring means and to thereby effect a relatively rapid reduction in temperature of the gases that circulate within the closed controlled environment; [illegible]
  - (iii) when the temperature of the gases is diminished to a third temperature that is lower than the second temperature, at which third temperature the charge of metal that has been annealed will not be deleteriously affected by being subjected to ambient air, terminating the flow of cooling fluid through the outer and inner cooling ring conduits and opening the closed controlled environment of the annealing furnace to permit removal of the charge of annealed metal therefrom.

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4,755,237

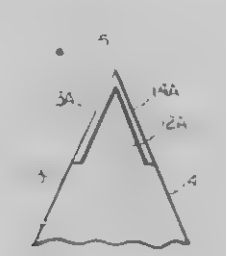
METHODS FOR MAKING CUTTING TOOLS

Jerome H. Lemelson, 48 Parkside Dr., Princeton, N.J. 08540

Continuation-in-part of Ser. No. 674,933, Nov. 26, 1984, abandoned, and a continuation-in-part of Ser. No. 364,497, Apr. 1, 1982, abandoned, and a continuation-in-part of Ser. No. 167,672, Jul. 11, 1980, abandoned. This application Sep. 15, 1986, Ser. No. 906,882

Int. Cl.⁴ C21D *1/06, 9/18*

U.S. Cl. 148—152 15 Claims



1. A method of forming a cutting tool comprising
(a) forming a cutting tool base having a metal portion thereof which is operable to be formed with a cutting edge,
(b) scanning said portion of said tool base with an intense radiation beam in a manner to remove material from said base and to form a cutting edge along the portion of said base from which said material is removed,
(c) transferring a portion of the heat of said radiation beam to the material of said cutting tool to melt a select portion of said material adjacent said cutting edge of said tool, and
(d) rapidly cooling at least a portion of the melted material in a manner to form a layer of non-crystalline metal of high wear resistence adjacent said cutting edge.

4,755,238

STRAIGHTENED RAIL

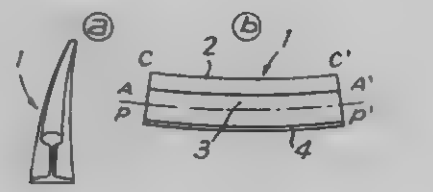
Raymond-Yves Deroche, Thionville; Yves Bourdon, Heining les Bouzonville, and André Faessel, Saint Nicolas en Foret, all of France, assignors to Unimetal, France

Division of Ser. No. 392,216, Jun. 25, 1982, Pat. No. 4,597,283. This application Mar. 5, 1986, Ser. No. 836,648

Claims priority, application France, Feb. 19, 1982, 82 02817

Int. Cl.⁴ C21D *7/00*

U.S. Cl. 148—320 4 Claims



1. A straightened asymmetrical railway rail having a head, web and foot, and having a residual internal stress lower than +/−50 N/mm² (+50 N/mm² stretched; −50 N/mm² compressed) produced by stretching a steel railway rail comprising a grade of rail steel having a tensile strength Rm lower than or equal to 1000 N/mm² through subjecting the rail to tensile stress exceeding the conventional 0.2% offset yield strength of the steel, and up to a stress corresponding to a total plastic deformation of the whole rail.

4,755,239

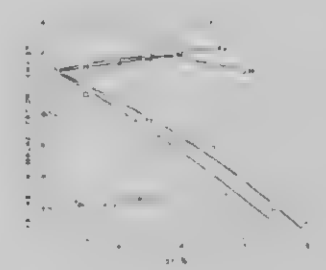
LOW MAGNETOSTRICTION AMORPHOUS METAL ALLOYS

Robert C. O'Handley, Bedford Hills, N.Y., assignor to Allied-Signal Inc., Morris Township, Morris County, N.J.

Continuation of Ser. No. 483,454, Apr. 8, 1983, abandoned. This application Jul. 2, 1986, Ser. No. 881,566

Int. Cl.⁴ C22C *19/03, 19/07*

U.S. Cl. 148—304 3 Claims



1. A magnetic alloy that is at least 50 percent glassy and consists essentially of a composition having the formula $(Co_{1-x-y-z}Fe_xNi_yT_z)_{100-b}(B_{1-w}M_w)_b$, where T is at least one of Mn, Cr, V, Ti, Mo, Nb and W, M is at least one of Si, P, C and Ge, B is boron, x ranges from about 0.05 to 0.25, Y ranges from about 0.05 to 0.80, z ranges from about 0 to 0.25, b ranges from about 12 to 30 atom percent, w ranges up to 0.75 when M is Si or Ge and up to 0.5 when M is C or P, said alloy having a value of magnetostriction of about -7×10^{-6} and $+5\times10^{-6}$ and a saturation induction of about 0.2 to 1.4 T.

4,755,240

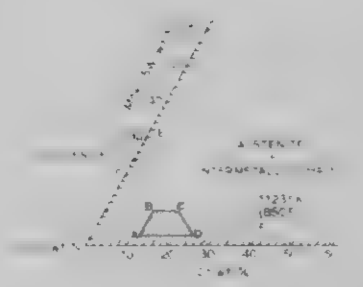
NICKEL BASE PRECIPITATION HARDENED ALLOYS HAVING IMPROVED RESISTANCE STRESS CORROSION CRACKING

Reghavan Ayer, Stamford, Conn.; Glen A. Vaughn, and Lawrence J. Sykes, both of Houston, Tex., assignors to Exxon Production Research Company, Houston, Tex. and Exxon Research and Engineering Company, Florham Park, N.J.

Filed May 12, 1986, Ser. No. 861,941

Int. Cl.⁴ C22C *19/05*

U.S. Cl. 148—410 13 Claims



1. A precipitation hardened alloy resistant to stress corrosion cracking which is substantially free of sigma phase particles and substantially free of chromium carbides at grain boundaries, the alloy composition consisting essentially of:
12–25 wt.% Cr;
0–10 wt.% Mo;
0–12 wt.% W with the proviso that Mo+0.5 W is ≧2 wt.% and ≦10 wt.%, and with the proviso that Cr+Mo+0.5 W is ≦28 wt.%;
2–6 wt.% of one or more of Al, Nb and Ti, wherein the ratio, expressed in atomic percent, of Al to Nb+Ti is between 0 and 4.0;
<0.05 wt.% C;
<0.05 wt.% O;
<0.05 wt.% N, with the proviso that C+O+N is greater than zero;
Hf in a concentration, expressed in weight percent, of between 10 (C+O+N) and 30 (C+O+N); and
the balance being Ni (and/or Co) and any incidental impurities, wherein the concentration of Ni (and/or Co), Cr and Mo (and/or W) are correlated so that their combination represents a point within the area of ABCD of FIG. 1 hereof.

4,755,241

CABLE SEALING

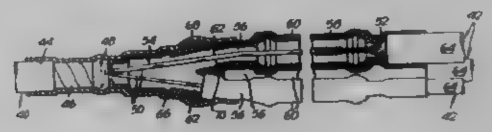
Norman R. Steinberg, Munich, Fed. Rep. of Germany, assignor to Raychem GmbH, Fed. Rep. of Germany

Continuation of Ser. No. 902,115, Aug. 29, 1986, abandoned, which is a continuation of Ser. No. 644,821, Oct. 29, 1984, abandoned, which is a continuation of Ser. No. 365,086, Apr. 2, 1982, Pat. No. 4,485,269. This application Mar. 6, 1987, Ser. No. 23,935

Claims priority, application United Kingdom, Apr. 7, 1981, 8112013

Int. Cl.⁴ H01B *13/32*

U.S. Cl. 156—48 14 Claims



1. A method of sealing an end of a mass-impregnated paper insulated cable, the cable sheath being stripped from the end of the cable to expose a length of the mass-impregnated paper insulation and to expose a conductor of the cable, said method comprising:
(a) positioning a first dimensionally recoverable polymeric sleeve such that it overlies the end region of the cable sheath, the adjacent portion of the mass impregnated paper insulation and the adjacent portion of the conductor;
(b) causing the first olymeric sleeve to recover so that it encloses the end region of the cable sheath and the adjacent portion of the insulation;
(c) removing a portion of the first polymeric sleeve to leave the end region of the insualtion unenclosed;
(d) applying a sealant material over the unenclosed insulation and the adjacent and region of the first polymeric sleeve;
(e) positioning a second dimensionally recoverable polymeric sleeve such that it overlies the sealant material and the adjacent region of the first polymeric sleeve beyond the applied sealant material; and
(f) causing the second polymeric sleeve to recover so that it encloses the sealant material and the adjacent region of the first polymeric sleeve;
said first polymeric member and said sealant material being substantially unaffected by the mass impregnating material of the cable.

4,755,242

METHOD AND APPARATUS FOR BINDING EDGES OF WOVEN, NON WOVEN AND KNITTED ARTICLES

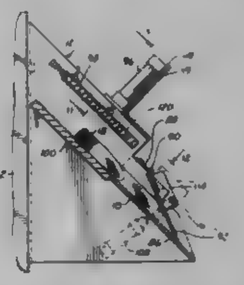
Acie B. Miller; Ralph H. Simpson, Jr., both of Roaring River, and Jimmy W. Luffman, Wilkesboro, all of N.C., assignors to Golden Needle Knitting & Glove Co., Inc., Wilkesboro, N.C.

Filed Feb. 17, 1987, Ser. No. 14,948

Int. Cl.⁴ B02C *11/08;* **B30B** *15/34*

U.S. Cl. 156—88 14 Claims

12. A method of finishing an edge of an article which is automatically woven or knitted by a knitting or wearing machine, of the type which ejects the article from an ejection area of the machine, and wherein the edge of the article includes a heat meltable thermoplastic material which binds the edge when the thermoplastic material is melted, said method comprising the steps of:
(A) delivering said article from said ejection area of said machine to a first station beneath said ejection area using the influence of gravity said first station including an inclined chute having an inlet and an outlet;



(B) holding said article in an inclined position at said first station;
(C) melting said thermoplastic material while said article is held in step (B);
(D) releasing said article after step (C) is performed; and
(E) delivering said article from said first station to a second station using the influence of gravity after step (D) is performed wherein said article moves downwardly on said chute by the influence of gravity.

4,755,243

METHOD FOR MAKING A TIRE

Michel Merle, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation of Ser. No. 870,459, Jun. 4, 1986, abandoned, which is a division of Ser. No. 802,865, Nov. 27, 1985, Pat. No. 4,625,785, which is a division of Ser. No. 579,213, Feb. 10, 1984, Pat. No. 4,580,611. This application Sep. 23, 1987, Ser. No. [illegible]

Claims priority, application France, Feb. 16, 1983, 83 02625

Int. Cl.⁴ B29D *30/10, 30/20*

U.S. Cl. 156—125 2 Claims

1. A method for manufacturing a tire, characterized by the following steps:
(1) directly arranging at least one reinforcement ply on a core of a tire casting mold having a mold cavity, the reinforcement ply being formed, at least in part, by a fabric having the following properties, when the fabric is arranged in such a manner as to have a generally flat shape with two flat principal faces:
(a) the fabric comprises a three-dimensional body and reinforcement threads arranged in the body and held by the body;
(b) practically all the voids in the fabric are capable of being impregnated with at least one elastomer-forming material which forms part of the structure of the tire;
(c) the body is capable of retaining a three-dimensional structure even if the reinforcement threads are removed from the fabric;
(d) the body comprises warp threads, each of these warp threads undulating practically in a plane perpendicular to the principal faces of the fabric and being alternately tangent to one of these faces and then to the other face;
(e) the body comprises woof threads arranged between the warp threads practically in at least four planes within the thickness of the fabric, these planes being parallel to the principal faces of the fabric;
(f) the reinforcement threads are arranged practically in one

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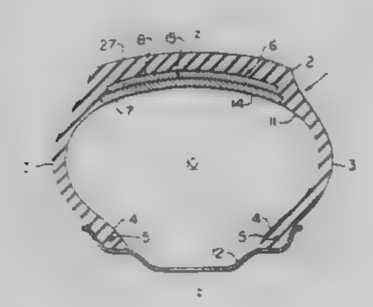
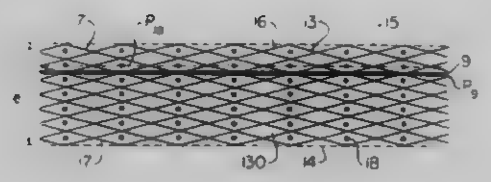
plane, the reinforcement threads having the same orientation, the plane of the reinforcement threads being parallel to the planes of the woof threads;
(g) the reinforcement threads are without contact with at least one of the principal faces of the fabric;
(h) the reinforcement threads are separated from each other by the threads of the body in sudh a manner that the reinforcement threads are without contact with each other;
(i) the threads of the body have a cross-section whose surface has an area at most equal to one-quarter of the area of the surface of the cross-section of the reinforcement threads;



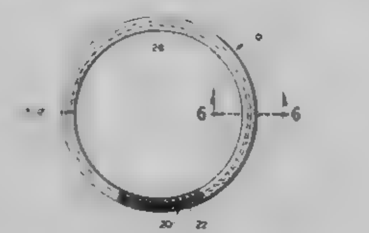


(j) the ratio between the rigidity of the fabric measured according to the orientation of the reinforcement threads and the rigidity of the body by itself measured in this same orientation is at least equal to 10, these rigidity measurements being carried out for a relative elongation of 2%;
(k) the porosity of the fabric is at least equal to 50%;
(l) the permeability of the fabric is at least equal to $10^{-11}m^2 \cdot Pa^{-1} \cdot s^{-1}$ for a fluid whose viscosity is 1 Pa·s;
(2) introducing the elastomer-forming material into the mold cavity to form the tire and to impregnate practically all the voids in the fabric.

4,755,244
METHOD OF FORMING A SEAL

Robert S. Allison, San Gabriel, Calif., assignor to General Connectors Corporation, Burbank, Calif.

Continuation-in-part of Ser. No. 710,850, Mar. 12, 1985, abandoned. This application Oct. 2, 1986, Ser. No. 914,363
Int. Cl.⁴ F16J *15/32*
U.S. Cl. 156—158 5 Claims

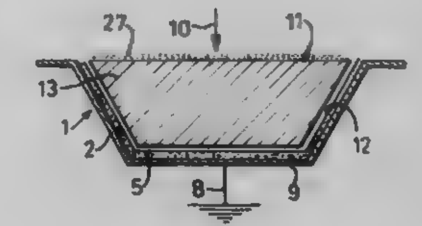


1. A method of forming a seal for use on aircraft ducts comprising the steps of selecting a tube of "set cured" elastomeric material generally circular in cross section and sized so that the diameter of the tube is large in comparison to the diameter of the bore of the tube, then cutting the tube to a predetermined length, then applying adhesive to the opposed end of this tube of elastomeric material and joining them together to form a tubular ring, next forming a circumferential slit in the outer periphery of the tube which is deep enough so it communicates with the bore in the ring and in such a way that the facing surfaces of the slit complement each other, then spreading the sides of the slit apart and inserting a garter spring into the bore of the ring, the size of the diameter of the turns of the garter spring selected so the turns of the garter spring do not adhere to the walls of the bore so the garter spring in the bore can contract independently of the ring, and the diameter of the garter spring selected so when it is movably mounted in the bore of the ring, the garter spring can exert compressive force on the ring independent of temperature over a wide temperature range for a prolonged period of time, next applying adhesive to the facing complementary surfaces of the slit and to the inner surface of the ring, then selecting a mold which has an inner concave surface shaped to form the work engaging surface of the seal, next applying at least one layer of fiberglass cloth to said inner concave surface of the mold, then inserting the ring in the mold in such a way that its inner surface abuts the surface of said fiberglass cloth and is covered thereby, finally applying heat to the mold to cause the facing complementary surfaces of the slit to bond together without distorting the shape of the seal and to cause the fiberglass cloth to bond to the inner surface of the ring to form the work engaging surface of the seal.

4,755,245
METHOD FOR CONDITIONING A PERMANENT ADHESIVE COMPOSITION IN THE FORM OF BLOCKS OR SECTIONS

Gerard H. Viel, Crepy En Valois, France, assignor to Societe Nouvelle Raffinerie Meridionale de Ceresines, Drancy, France

Continuation of Ser. No. 680,261, filed as PCT FR84/00045 on Feb. 29, 1984, published as WO84/03468 on Sep. 13, 1984, abandoned. This application Jun. 20, 1986, Ser. No. 877,183
Claims priority, application France, Mar. 1, 1983, 83 03387
The portion of the term of this patent subsequent to Jun. 7, 2005, has been disclaimed.
Int. Cl.⁴ B29C *41/08*
U.S. Cl. 156—227 22 Claims

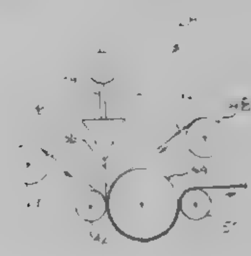


1. A method for packaging a permanent adhesive composition in a mold having an interior surface, said method comprising the steps of:
providing an open top casting mold;
providing by electrostatic coating a screen of powdery material over the entire surface of the mold;
casting the composition in the mold to form a block, the electrostatic coating being such as to maintain the coherence of the screen during casting;
cooling the cast block to cause that part of the screen adjacent the block to become part of the block, whereby a packaged article is formed in which all of the surfaces opposite the interior surface of the mold are protected by the screen and the surface corresponding to the open top of the mold is unprotected;
protecting the unprotected surface; and
removing the packaged article from the mold.

4,755,246
METHOD OF MAKING A LAMINATED HEAD CLEANING DISK

Victor Monia, Saratoga, Calif., assignor to Visa Technologies, Inc., Mountain View, Calif.

Division of Ser. No. 711,087, Mar. 12, 1985, Pat. No. 4,704,648. This application Oct. 24, 1986, Ser. No. 922,722
Int. Cl.⁴ B29C *47/04*; B32B *31/30*
U.S. Cl. 156—244.11 5 Claims

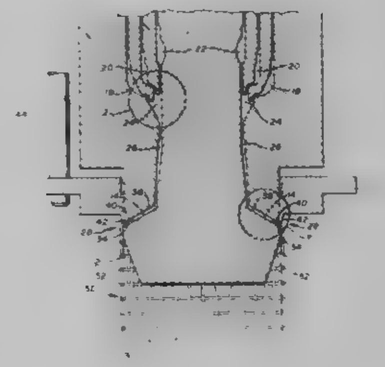


1. A method of making a head-cleaning disk for cleaning magnetic transducer heads in magnetic disk-reading machines comprising:
producing a solvent permeable film of heat plastified thermoplastic material;
adding a light transmission reducing pigment to said thermoplastic material;
pressing confronting faces of a pair of layers of a non-heat plastified head-cleaning material against opposite faces of the film;
cooling the resulting laminate until the film hardens; and
stamping said laminate into the form of a cleaning disk provided with a centrally disposed first aperture and a second aperture spaced apart from said first aperture.

4,755,247
PLASTIC NET COMPOSED OF CO-EXTRUDED COMPOSITE STRANDS

Richard C. Mudge, 3113 39th Ave. South, Minneapolis, Minn. [illegible]

Division of Ser. No. 593,829, Mar. 27, 1984, Pat. No. 4,656,075. This application Aug. 11, 1986, Ser. No. 895,433
Int. Cl.⁴ B32B *31/00*
U.S. Cl. 156—244.15 12 Claims

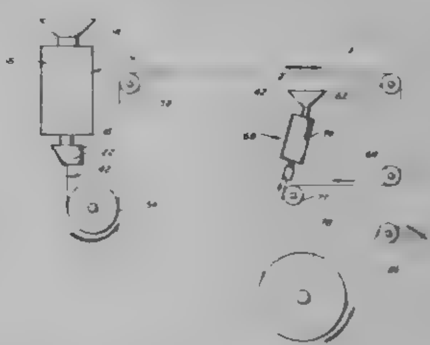


1. A method of manufacturing plastic net comprising the steps:
(a) coextruding a laminar composite of at least different kinds of plastic in superimposed bonded relationship to each other through a plurality of individual openings in a die to form a first plurality of composite plastic strands;
(b) coextruding a laminar composite of at least two different kinds of plastic in superimposed, bonded relationship to each other from a die to form a second plurality of composite plastic strands to intersect the first plurality of strands thereby forming a net-like structure.

4,755,248
SLOT-CAST INTERGRATED INTERLOCKING FILM CLOSURE STRUCTURE

Herbert B. Geiger, Bay City, and Donald L. Kain, Jr., Sebewaing, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 30, 1986, Ser. No. 947,726
Int. Cl.⁴ B32B *31/30*
U.S. Cl. 156—244.25 11 Claims

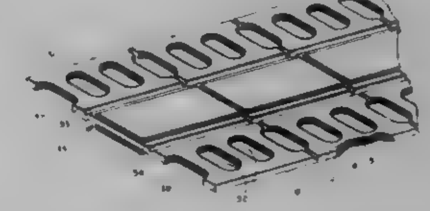


1. A method for forming plastic bag film for reclosable plastic bags comprising
extruding a bag film web including a relatively thinner first portion having relatively lesser heat retention properties and a relatively thicker second portion having relatively greater heat retention properties,
extruding a closure member,
joining said closure member to said thicker second portion before said thicker second portion has cooled to an ambient temperature, and
cooling said closure member and bag film.

4,755,249
MOUNTING BASE PAD MEANS FOR SEMICONDUCTOR DEVICES AND METHOD OF PREPARING SAME

David C. DeGree, Burnsville; Carl R. Bergquist, Minnetonka; Dallas R. Humphrey, Golden Valley, and Roger A. West, Woodbury, all of Minn., assignors to The Bergquist Company, Minneapolis, Minn.

Division of Ser. No. 625,140, Jun. 27, 1984. This application Dec. 22, 1986, Ser. No. 944,979
Int. Cl.⁴ B32B *31/18*; F28F *7/00*; H01B *19/04*
U.S. Cl. 156—252 3 Claims



1. In the method of continuously fabricating mounting

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means for use in combination with solid-state semiconductive translating devices and which comprise a base pad having edge surfaces including opposed ends and opposed sides, and with flange walls coupled to opposed side edges of said base pad, and wherein said base pad and flange walls comprise a generally rigid deformable laminate structure having outer metallic foil layers and a silicone base rubber core, and a silicone base rubber mounting pad means being secured to the surface of said base pad, wherein said method comprises:

(a) preparing an elongated strip of said generally rigid deformable metallic laminate structure;
(b) forming a first pair of generally parallelly disposed score lines longitudinally along said elongated strip at a point spaced laterally inwardly from the outer edge surfaces thereof, and forming a second pair of score lines transversely of said first pair of score lines at regularly spaced intervals along said elongated strip to form a breaking-off line for individual mounting means formed along said strip; and
(c) applying an adherent and coherent film pad of silicone rubber to the surface of said elongated strip generally between said parallelly disposed score lines.

4,755,250
METHOD FOR THE PRODUCTION OF RIGID FOAM SHEETS

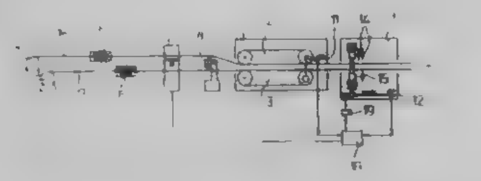
Herbert Adolf, Antdorf, Fed. Rep. of Germany, assignor to Elastogran GmbH, Lemförde, Fed. Rep. of Germany

Filed Dec. 10, 1985, Ser. No. 807,474

Claims priority, application Fed. Rep. of Germany, Dec. 12, [illegible]

Int. Cl.⁴ B32B *31/18*

U.S. Cl. 156—268 1 Claim



1. A process for the production of rigid foam sheets which are provided with cover sheets on their upper and lower sides, a parting agent being applied to the lower cover sheet prior to application of the rigid foam-forming components, and, after reaction and curing of the components is complete, two parallel transverse cuts being made over the section provided with parting agent, one of these cuts being a parting cut and the other separating only the upper cover sheet and the rigid foam layer, wherein a signal indicative of the position at which the parting agent is applied and also signals indicative of the length of the path covered by the lower cover sheet after this application are input into an electronic computer and wherein said computer initiates the transverse cut when the number of the last-mentioned signals corresponds to the distance, stored in the computer, between a saw and the section at which the parting agent is applied.

4,755,251
BONDING METHOD EMPLOYING PRIMER FOR FIBERGLASS REINFORCED POLYESTER

Richard L. Cline, Ashland; Scott V. Nolletti, Wooster; Thomas G. Rabito, Ashland, and Daniel A. Chung, Dublin, all of Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

Filed Feb. 9, 1987, Ser. No. 12,536

Int. Cl.⁴ C09J *5/04*

U.S. Cl. 156—315 5 Claims

1. The process of adhering a first fiberglass reinforced polyester substrate to a second substrate selected from the group consisting of fiberglass reinforced polyester, metal or plastic, comprising the steps of priming said first polyester substrate with a primer comprising an ether type epoxy resin, an amino functional silane and organic solvent, applying a curable urethane adhesive, affixing said second substrate, and curing said affixed substrates by heating to effect adherence therebetween.

4,755,252
DOUBLE-BAND PRESS FOR CONTINUOUS PRODUCTION OF COPPER-LINED LAMINATES WITH AUXILIARY CLEANING EQUIPMENT

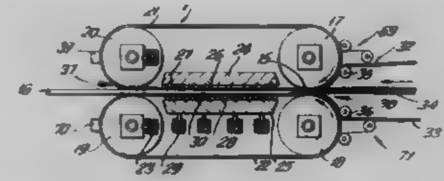
Kurt Held, Alte Strasse 1, D-7218 Trossingen 2, Fed. Rep. of Germany

Filed Sep. 16, 1986, Ser. No. 907,962

Claims priority, application Fed. Rep. of Germany, Sep. 19, [illegible]

Int. Cl.⁴ B32B *31/08*; B30B *5/06*, *15/08*

U.S. Cl. 156—389 29 Claims



1. A double-band press compressing an upper press belt unit disposed above a lower press belt unit with said press belt units mounted in a press frame, each of said press belt units has a first end and a second end and includes two rotatably mounted deflecting drums with one deflecting drum at the first end and the other deflecting drum at the second end of said press belt unit, and an endless press belt tensioned over the deflecting drums and each said press belt having an upper belt portion and a lower belt portion extending between said deflecting drums with the lower portion of said press belt of said upper press belt unit and the upper portion of said press belt of said lower press belt unit disposed adjacent to one another and forming a reaction zone arranged to exert pressure on material passed through the reaction zone for the continuous production of copper-lined laminates assembled from a layered material core having an upper surface and a lower surface with copper foils firmly adhered to the upper and lower surfces, said press belt units forming an inlet zone into the reaction zone at the first ends of said press belt units where the material is fed into the reaction zone and an outlet zone at the second ends of said press belt units where the material exits from the reaction zone, rollers located upstream from the inlet zone for supporting the layered material core and copper foil webs and for supplying the material core nd the foil webs into the inlet zone, a deflecting roller located adjacent the inlet zone and upstream from the reaction zone and positioned adjacent said deflecting drum at the first end of each said press belt unit for guiding the copper foil web into contact with the press belt as the press belt passes over the deflecting drum at the first end when the foil web enters the inlet zone before contacting the material core, a press belt grinding device for contacting each said press belt at a position outside of the range of the inlet zone and reaction zone and arranged to remove hardened resin, residues and other impurities from the press belt, a wiping device arranged to contact each said press belt for removing dust and other particles from each said press belt and from the surfaces of the copper foil web moving into inlet zone, said wiping device arranged to contact the surface of the copper foil web which contacts the press belt as the web moves into contact with the press belt, said wiping device located between said grinding device and said inlet zone in the direction of movement of the press belt toward the inlet zone, and said wiping device comprises a first windoff roller and a first windup roller for a wiping cloth, wherein the improvement comprises that said press belt grinding device includes a grinding belt wound off a second windoff roller and wound on a second windup roller, a holding device secured to said press frame and supporting the

second windoff roller and second windup roller, a contact pressure device located between the second windoff roller and second windup roller and supported in said holding device by leaf springs for moving the contact pressure device in a direction perpendicular to the movemnt of said press belt, means for moving said contact pressure device in an oscillating motion, and said means for moving comprising a motor and a cam with a connecting rod extending from said cam to said contact pressure device, said contact pressure device is positioned for pressing the grinding belt between the second windoff roller and second windup roller against the surface of the press belt for forming grinding traces intersecting on said press belt, said first windoff roller is spaced outwardly from said deflecting drum at the first end of the adjacent press belt unit and is located adjacent to the path of the copper foil web moving toward the inlet zone so that the wiping cloth on said first windoff roller contacts and wipes the surface of the copper foil web which surface faces said press belt, and said first windup roller is located adjacent the surface of said press belt passing over said deflecting drum at the first end of said press belt unit whereby the wiping cloth moving onto said first windup roller wipes the press belt surface of said press belt before said press belt is contacted by the copper foil web.

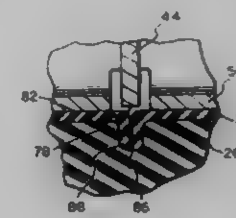
4,755,253
SPLICING APPARATUS

John T. Ciolkevich, Richfield, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 862,310, May 12, 1986, Pat. No. 4,722,132. This application Jul. 27, 1987, Ser. No. 60,413

Int. Cl.⁴ B31F *5/00*

U.S. Cl. 156—502 10 Claims



1. Splicing apparatus for attaching an overlapping upper layer of a first body of deformable material and an overlapped lower layer of a second body of resilient material comprising:

(a) support means for supporting said overlapped lower layer of said second body;
(b) a splicer mounting member
(c) blade means including blade members supported at a spaced-apart position from said support means adjacent said overlapping upper layer of said first body, said blade means comprising a blade member cartridge mounted on said splicer mounting member;
(d) means for moving said blade means toward said support means to press an edge of each of said blade members to deform said upper layer of said first body into said lower layer of said second body to form a slot in said second body and displace a rib of said first body into said slot;
(e) means for moving said blade means away from said support means to retract each of said blade members from said rib and said slot; and
(f) means resiliently mounted on said splicer mounting member for holding said upper layer of said first body against said lower layer of said second body on said support means while retracting each of said blade members from said rib and said slot so that said rib is gripped in said slot by said resilient material of said second body.

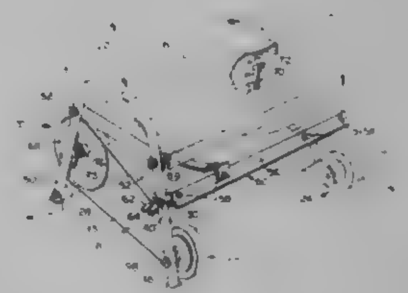
4,755,254
ROLL PAPER AND TAPE DISPENSING EQUIPMENT

Hubert A. Bedwell, Sycamore Township, Hamilton County, Ohio, assignor to Fibre Glass-Evercoat Company, Inc., Cin[illegible]

Filed Mar. 2, 1987, Ser. No. 20,452

Int. Cl.⁴ B31F *5/06*; B32B *31/18*

U.S. Cl. 156—554 3 Claims



1. A dispensing stand for supporting a roll of paper and a roll of tape having an adhesive coating on one face thereof which comprises four upright leg members, opposed roll supports on opposed ones of the leg members, roll of paper support means mountable in said roll supports to support said roll of paper, a tape support on another of the leg members, tape from the roll of tape on the tape support passing over an edge portion of the roll of paper to attach a first adhesive coated portion of the tape to the edge portion of the outer convolution of the roll of paper with another portion of the adhesive coated portion of the tape being exposed, a plate spanning leg members spaced from the opposed ones of the leg members, a paper web with attached tape extending from the roll of paper and passing adjacent the plate, tension spring means carried by the plate and extending crosswise of the paper web with attached tape and urging the paper web and the tape together and toward the plate to cause firm adherence of the first portion of the tape to the paper web, and second spring means mounted on the plate and engageable with an outer layer of the roll of paper to brake movement of the roll of paper supported on said roll of paper support means to preclude overrunning of the roll of paper and to retainingly urge the roll of paper support means in supported relation to said roll supports.

[illegible]
CAP HEAT-SEALING APPARATUS FOR CONTAINERS

Masao Shimokawa, and Yoshio Tada, both of Tokushima, Japan, assignors to Shikoku Kakoki Co., Ltd., Tokyo, Japan

Division of Ser. No. 744,186, Jun. 13, 1985, Pat. No. 4,659,415. This application Dec. 10, 1986, Ser. No. 940,132

Int. Cl.⁴ B32B *31/00*

U.S. Cl. 156—580 2 Claims

1. A means for pressing a fitting portion to an opening edge of a container when heat-sealing the fitting portion to the opening edge after the fitting portion formed on a peripheral edge of a square cap inwardly projecting therefrom is fitted in the opening of the container, comprising:

(a) a stationery pressing member provided on a horizontal support plate at a lower surface thereof downwardly projecting therefrom and having an outer peripheral surface shaped in the form of a square in conformity with an inner peripheral surface of the fitting portion;
(b) four movable pressing members arranged around the stationary pressing member for pressing on the container opening edge, each having a pressing face V-shaped when seen from above to conform with part of the outer peripheral surface of the stationary pressing member including one V-shaped face at each corner thereof so that, when the movable pressing members are brought toward the

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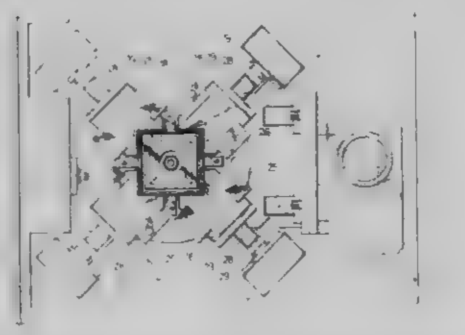
stationary pressing member, the pressing faces thereof form a square in combination to conform with the entire outer peripheral surface of the stationary pressing member with ends of the movable pressing members at sides of said stationary pressing member;

(c) a slide guide member for movable holding each movable pressing member diagonally of the square formed by the outer peripheral surface of the stationary pressing member; and

(d) a means for moving each movable pressing member toward and away from the stationary pressing member, so as to press a V-shaped member against each corner thereof such that a positive inward pressure is applied at each corner of said container opening edge.



4,755,256
METHOD OF PRODUCING SMALL CONDUCTIVE [redacted]

Brian M. Ditchek, Milford, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed May 17, 1984, Ser. No. 611,307

Int. Cl.⁴ C30B *13/21, 21/02, 29/10*

U.S. Cl. 156—620.71 **4 Claims**

1. The method of producing small conductive members on a substrate comprising
providing a substrate having a surface;
depositing silicon and a material on the surface of the substrate to form a layer; said material being selected from the group consisting of a metal a silicide of which forms a eutectic composition with silicon, the silicide of said metal which forms the eutectic composition with silicon, and mixtures thereof; the mole ratio of silicon to the metal present in the layer being approximately equal to the mole ratio of silicon to the metal in the eutectic composition of the silicide of said metal which forms the eutectic composition with silicon and silicon;
heating an area on the surface of said layer to a temperature above the melting point of the eutectic composition of the silicide of said metal which forms the eutectic composition with silicon and silicon to establish a molten zone in said layer; and
causing the molten zone to tranverse a portion of said layer whereby the portion of said layer traversed by the molten zone resolidifies into alternating strips of silicon and the silicide of said metal which forms the eutectic composition with silicon;
wherein
silicon and said material are deposited in alternate films to form said layer; and
including prior to heating to establish a molten zone the step of annealing the silicon and material of said layer to form a more intimate mixture of silicon and the material in said layer and to reduce the surface reflectivity of said layer.

4,755,257
METHOD OF PROCESSING THIN METAL SHEETS BY [redacted]

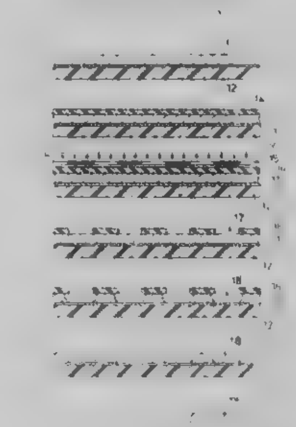
Toshio Yamamoto; Masaru Kawasaki; Takefumi Kandori, and Ryoichi Ando, all of Shiga, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Apr. 6, 1987, Ser. No. 35,050

Claims priority, application Japan, Apr. 17, 1986, 61-89563

Int. Cl.⁴ C23F *1/02;* **B44C** *1/22*

U.S. Cl. 156—631 **4 Claims**



1. A method of patterning a thin metal sheet, comprising the steps of:
providing a thin metal sheet of less than about 0.5 mm thickness;
fixedly applying a supporting sheet to one surface of said metal sheet;
applying a photoresist material to the other surface of said metal sheet to form a photoresist layer therein;
exposing desired pattern images onto said photoresist layer;
supplying a developing solution to said photoresist layer to develop said pattern images on said photoresist layer and thereby bare a metal sheet surface having desired pattern images;
supplying an etching solution to said metal sheet surface to etch said metal sheet surface thus bared;
removing said photoresist layer from said metal sheet; and
removing said supporting sheet from said metal sheet by peeling.

4,755,258
METHOD AND APPARATUS FOR DEACTIVATING SPENT LIQUOR

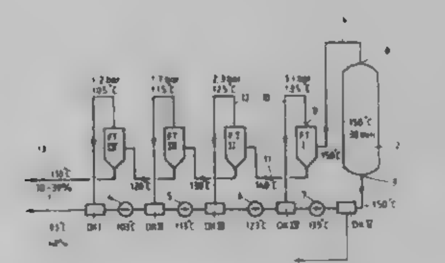
Rolf Ryham, Sollentuna, Sweden, assignor to Ahlströmföretagen Svenska AB, Norrköping, Sweden

Filed May 29, 1986, Ser. No. 868,065

Claims priority, application Sweden, Jun. 6, 1985, 8502807

Int. Cl.⁴ B01D *1/26, 3/06*

U.S. Cl. 159—47.3 **15 Claims**



1. Apparatus for deactivating spent liquor, comprising:
a plurality of flash tanks for expanding deactivated liquor, comprising n flash tanks connected in series, wherein n is a positive integer;
a plurality of direct condensers, comprising n+1 direct condensers, connected in series including a first condenser into which undeactivated spent liquor is fed, and a last condenser from which undeactivated spent liquor flows;
each of said flash tanks comprising a vapor generating portion, said vapor generating portion of each of said flash tanks operatively connected to one of said condensers for direct heating of said undeactivated spent liquor, except said last condenser; and
the liquor flowing from said last condenser operatively connected to a retention tank disposed between said last condenser and a liquor inlet to a first of said series of flash tanks.

12. A method for deactivating calcium containing black liquor obtained from the cooking of comminuted cellulosic fibrous material comprising the steps of:
(a) feeding undeactivated black liquor under pressure through a plurality of direct condensers arranged in series from first to last, and from the last direct condenser to a retention tank where said black liquor is deactivated by precipitation of the calcium;
(b) during step (a), increasing the pressure successively between each of the plurality of direct condensers;
(c) discharging deactivated spent liquor from said retention tank to a plurality of flash tanks arranged in series from first to last, wherein in each of said flash tanks, said deactivated liquor is partially vaporized; and
(d) utilizing vapor formed in each of said flash tanks to heat undeactivated liquor in said direct condensers, wherein the direction of flow of said deactivated liquor is counter the direction of flow of said undeactivated liquor, and wherein the vapor from the first of said series connected flash tanks supplies heat to the next-to-last direct condenser, and the vapor from the last of said series connected flash tanks supplies heat to the first direct condenser.

4,755,259
PROCESS FOR PAPERMAKING

Hans M. Larsson, Västra Frölunda, Sweden, assignor to EKA Nobel Aktiebolag, Surte, Sweden

Continuation of Ser. No. 737,568, May 23, 1985, abandoned, which is a continuation of Ser. No. 517,521, filed as PCT SE82/00401 on Nov. 26, 1982, published as WO83/01970 on Jun. 9, 1983, abandoned. This application Dec. 22, 1986, Ser. No. 945,161

Claims priority, application Sweden, Nov. 27, 1981, 8107078

The portion of the term of this patent subsequent to May 31,
[redacted]

Int. Cl.⁴ D21H *3/20*

U.S. Cl. 162—178 **13 Claims**

1. A papermaking process in which an aqueous papermaking stock containing cellulosic pulp is formed and dried, the improvement which comprises incorporating into the stock prior to the formation of the sheet a binder comprising colloidal silicic acid provided as a colloidal silicic acid sol having silicic acid particles with a surface area from about 50 to 1000 m^2/g and cationic guar gum having a degree of substitution of from 0.01 to about 1.0, the weight ratio of guar gum to SiO_2 in the colloidal silicic acid being between 0.01:1 and 25:1, the solids in said binder amounting to 0.1 to 5% of the weight of said pulp.

4,755,260
METHOD FOR PRODUCING FELT FOR PAPER MAKING

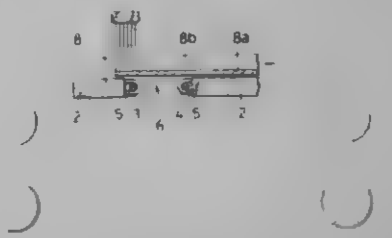
Norio Sakuma, Tokyo, Japan, assignor to Ichikawa Woolen Textile Co., Ltd., Tokyo, Japan

Filed Sep. 5, 1986, Ser. No. 904,952

Claims priority, application Japan, Sep. 13, 1985, 60-202959

Int. Cl.⁴ D21F *7/10, 3/00*

U.S. Cl. 162—199 **7 Claims**



1. A method for producing papermaker's felt having an elongated base fabric, at least one batt layer, and means to interconnect the opposite longitudinal ends of the base fabric to make an endless felt, the method comprising: providing seaming loops having bights on opposite longitudinal ends of the base fabric; positioning said seaming loops in longitudinally spaced-apart relationship and inserting shape-retaining wires into the bights of said loops; and needling a batt layer on at least one side of the fabric and between said spaced-apart loops to make the batt layer endless; cutting said batt layer widthwise adjacent the loops of the fabric into flat form; removing the shape-retaining wires from the bights of the seaming loops at the opposite ends; bringing the loops into interdigitated engagement; introducing a core element into the common bight of said loops produced by said interdigitated engagement to reconnect them; and finally cutting the batt layer so that the ends thereof abut each other at right angles to the longitudinal direction and obliquely to the thickness direction along a line of abutment.

7. A method according to claim 1 including the step of temporarily stitching a connector to each end of said base fabric prior to mounting said felt on a paper making machine, using said connector to interdigitate said loops on the paper making machine for introduction of the core element therethrough, removing the connectors, and needling the batt layer along said line of abutment to integrate the fibrous material of the batt layer in one end with the batt layer of the abutting end.

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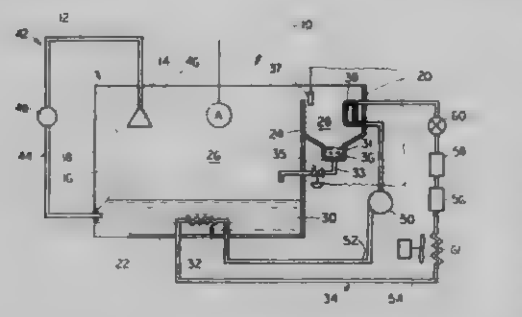
4,755,261
VAPOR GENERATING AND RECOVERY METHOD FOR VAPOR RETENTION AND REUSE

James W. McCord, 9101 Nottingham Pkwy., Louisville, Ky. 40222; Lamont I. Hoppestad, 10802 Bell Rock Ct., Louisville, Ky. 40243, and Michael J. Ruckriegel, 410 Westwood Dr., Middletown, Ky. 40243

Continuation of Ser. No. 581,545, Feb. 21, 1984, abandoned. This application Jan. 2, 1987, Ser. No. 38

Int. Cl.⁴ B01D *3/06*; B08B *7/00*

U.S. Cl. 203—4 14 Claims



1. A method of vaporizing a liquid and condensing the vapor in a vapor generating and recovery apparatus used to surface treat an object having a vaporizing chamber and a condensing chamber separated from the vaporizing chamber and in both liquid and vapor flow communication with the vaporizing chamber, comprising the steps of:

- heating a thermal mass at the bottom of the vaporizing chamber only to a temperature sufficiently
- higher than the vaporizing temperature of the liquid to be vaporized to substantially immediately vaporize any of the liquid coming in contact therewith;
- contacting the thermal mass with the liquid thereby substantially immediately vaporizing the liquid;
- surface treating an object immersed in the vaporized liquid in the vaporizing chamber while allowing the vaporized liquid to flow from the vaporizing chamber into the condensing chamber;
- condensing the vaporized liquid in the condensing chamber;
- returning the condensed liquid from the condensing chamber directly to the vaporizing chamber; and,
- contacting the thermal mass with the condensed liquid thereby substantially immediately vaporizing the liquid.

4,755,262
METHOD FOR PURIFICATION OF GLYCIDYL ACRYLATE OR GLYCIDYL METHACRYLATE

Mitsunori Matsumoto, Habikino; Yukio Tanaka, Nara; Akio Tani, Habikino, and Shigeaki Matsumoto, Yamatokoriyama, all of Japan, assignors to Osaka Yuki Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Oct. 26, 1987, Ser. No. 112,306

Claims priority, application Japan, Apr. 13, 1987, [illegible]

Int. Cl.⁴ B01D *3/34*; C07D *301/27, 301/36*

U.S. Cl. 203—6 1 Claim

1. A method for the purification of crude glycidyl acrylate or crude glycidyl methacrylate obtained by the reaction of an alkali metal of acrylic acid or methacrylic acid with epichlorohydrin in the presence of a quaternary ammonium salt as a catalyst, which method is characterized by the steps of adding to said crude glycidyl acrylate or crude glycidyl methacrylate at least one member selected from the group consisting of heteropoly acids or alkali metal salts thereof represented by the general formula:

$$Z_m XY_{12}O_{40}.nH_2O$$

(wherein X stands for a phosphorus or silicon atom, Y for a tungsten or molybdenum atom, Z for a hydrogen atom or an alkali metal atom selected from among lithium, sodium, and potassium, m for 3 where X denotes a phosphorus atom or 4 where X denotes a silicon atom, and n for a positive integer in the range of 0 to 30) thereby effecting treatment of said crude glycidyl acrylate or crude glycidyl methacrylate and subsequently separating consequently purified glycidyl acrylate or glycidyl methacrylate by distillation.

4,755,263
PROCESS OF ELECTROPLATING AN ADHERENT CHROMIUM ELECTRODEPOSIT ON A CHROMIUM SUBSTRATE

Kenneth R. Newby, Berkeley Heights, N.J., assignor to M&T Chemicals Inc., Woodbridge, N.J.

Filed Sep. 17, 1986, Ser. No. 908,434

Int. Cl.⁴ C25D *5/34, 3/04*

U.S. Cl. 204—29 8 Claims

1. In a method of electroplating an adherent chromium deposit on a chromium substrate, from a chromium electroplating bath the step which comprises chemically oxidizing the chromium substrate with hydrogen ion before electrodepositing chromium thereon from a conventional sulfate, mixed catalyst or other high energy efficient chromium electroplating bath, said chemical oxidizing being evidenced by hydrogen evolution and formation of a gray, green-black film on the surface of the chromium substrate.

4,755,264
ELECTROLYTE SOLUTION AND PROCESS FOR GOLD ELECTROPLATING

Jean A. Lochet, Metuchen, and Raj B. Patel, Piscataway, both of N.J., assignors to Vanguard Research Associates, Inc., South Plainfield, N.J.

Filed May 29, 1987, Ser. No. 55,420

Int. Cl.⁴ C25D *3/56, 3/62*

U.S. Cl. 204—44.3 18 Claims

1. A bath for producing deposits of gold by electrodeposition comprising an aqueous solution containing at least one soluble gold cyanide compound, oxylic acid in a concentration of from about 5 to about 50 grams per liter of said bath solution, a dicarboxylic acid having the formula $HOOC—(CH_2)_n—COOH$ in which n is an integer from 1 to 4 or mixtures thereof, a hardener selected from the group consisting of nickel and cobalt compounds and sufficient alkali to bring the pH to within the range of about 3.5 to about 4.8.

4,755,265
PROCESSES FOR THE DEPOSITION OR REMOVAL OF METALS

Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

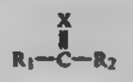
Continuation-in-part of Ser. No. 750,322, Jun. 28, 1985, Pat. No. 4,686,017. This application Mar. 3, 1987, Ser. No. 21,201

The portion of the term of this patent subsequent to Aug. 11, 2004, has been disclaimed.

Int. Cl.⁴ C25D *3/02*; C25F *3/00*; B05D *3/02*

U.S. Cl. 204—45.1 33 Claims

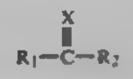
1. A method for electrolytically plating a metal on an electrically conductive substrate which method comprises suspending said electrically conductive substrate as a cathode in an electrolytic cell comprising an anode and said cathode immersed in an electrically conductive bath comprising platable metal ions, sulfuric acid and a chalcogen-containing compound soluble in said bath and having the empirical formula



$$R_1-\overset{\overset{X}{\|}}{C}-R_2$$

wherein X is a chalcogen, each of R_1 and R_2 is selected from hydrogen, NR_3R_4 and NR_5, at least one of R_1 and R_2 is other than hydrogen, each of R_3 and R_4 is selected from hydrogen and monovalent organic radicals, and R_5 is selected from divalent organic radicals, the molar ratio of said chalcogen-containing compound to said sulfuric acid is about 1 to about 10, and the molar ratio of water to the combination of said sulfuric acid and said chalcogen-containing compound is about 20 or less.

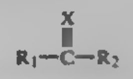
12. A method for electrolytically removing a metal from an electrically conductive substrate which method comprises employing said substrate as the anode in an electrolytic cell comprising said anode and a cathode immersed in an electrically conductive bath comprising sulfuric acid and chalcogen-containing compound soluble in said bath and having the empirical formula



$$R_1-\overset{\overset{X}{\|}}{C}-R_2$$

wherein X is a chalcogen, each of R_1 and R_2 is selected from hydrogen, NR_3R_4 and NR_5, at least one of R_1 and R_2 is other than hydrogen, each of R_3 and R_4 is selected from hydrogen and monovalent organic radicals, and R_5 is selected from divalent organic radicals, the molar ratio of said chalcogen-containing compound to said sulfuric acid is about 1 to about 10, and the molar ratio of water to the combination of said sulfuric acid and said chalcogen-containing compound is about 20 or less, and impressing a voltage differential across said cathode and said anode.

30. A method for immersion plating platable metal ions on a substrate which comprises a metal less noble than said platable metal ions, which method comprises suspending said substrate in an electrolyte containing said platable metal ions, sulfuric acid, and a chalcogen-containing compound soluble in said bath and having the empirical formula:



$$R_1-\overset{\overset{X}{\|}}{C}-R_2$$

wherein X is is a chalcogen, each of R_1 and R_2 is selected from hydrogen, NR_3R_4 and NR_5, at least one of R_1 and R_2 is other than hydrogen, each of R_3 and R_4 is selected from hydrogen and monovalent organic radicals, and R_5 is selected from divalent organic radicals, the molar ratio of said chalcogen-containing compound to said sulfuric acid is at least about 1, the molar ratio of water to the combination of said sulfuric acid and said chalcogen-containing compound is about 20 or less, and the $[H_2O]/[\text{chalcogen compound}][H_2SO_4]$ molarity product ratio is about 50 or less, under conditions sufficient to plate said metal ions on said substrate.

4,755,266
PROCESS FOR SILVER CATHODE ACTIVATION

Charles K. Bon, Concord, and Vera M. Knowles, Martinez, both of Calif., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 11, 1986, Ser. No. 884,447

Int. Cl.⁴ C25F *1/00*

U.S. Cl. 204—141.5 12 Claims

1. A method of activating or reactivating a silver cathode used in electrochemical synthesis which comprises contacting the cathode with an alkaline aqueous solution containing as the only activating or reactivating subetances one or more essentially heavy metal free oxidizing agents capable of oxidizing silver to silver oxide for a period of time sufficient to increase the efficiency of the cathode.

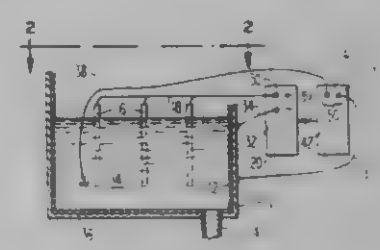
4,755,267
METHODS AND APPARATUS FOR PROTECTING METAL STRUCTURES

David N. Saunders, North Berwick, Me., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Jun. 3, 1986, Ser. No. 870,253

Int. Cl.⁴ C23F *13/00*

U.S. Cl. 204—147 30 Claims



1. A method for determining the polarization potential of a metal structure in contact with a corroding electrolyte, comprising

- continuously passing a flow of undirectional current to said structure through said electrolyte from electrode means positioned therein,
- establishing a measuring circuit comprising a voltage measuring means, current measuring means, a single reference cell, and said metal structure, said cell positioned in said electrolyte between said electrode means and a wall of said structure at a substantial distance therefrom,
- measuring said electrode current at a first level "a" and measuring voltage at said reference cell at said first level "a" of electrode current ,
- varying said electrode current by modulation which abruptly changes said electrode current from said first level "a" to a second level "b",
- measuring said second level "b" of electrode current and measuring voltage at said reference cell at said second level "b" of electrode current, and
- deducing the polarization potential from said measured cell voltages and said measured levels "a" and "b" of electrode current .

4,755,268
PROCESS AND APPARATUS FOR PRODUCING SILVER-IONIC WATER

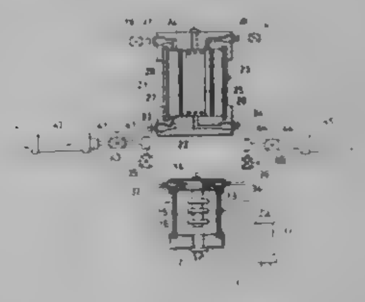
Yoshiaki Matsuo, 2-19-11, Omorihoncho, Ota-ku, Tokyo; Jinichi Ito, 1-2-1, Nishiwaseda, Shinjuku-ku, Tokyo, and Katsue Oshima, 4-26-9, Shichirigahamahigashi, Kamakura-shi, Kanagawa-ken, all of Japan

Filed May 18, 1987, Ser. No. 50,437

Claims priority, application Japan, May 28, 1986, 61-123133; Dec. 26, 1986, 61-314792

Int. Cl.⁴ C02F *1/46*

U.S. Cl. 204—149 10 Claims



1. A process for producing silver-ionic water, comprising.

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a step of passing weter through a first electrolytic cell chamber containing an anode and a cathode and provided with silver on the anode, under the application of a voltage, to dissolve out silver ions; and

a step of passing the water in which said silver ions have been dissolved out, through either one or both of an anode compartment and a cathode compartment of a second electrolytic cell chamber containing an anode and a cathode and separated into said anode compartment and said cathode compartment with a diaphragm formed between both of said electrodes;

said diaphragm allowing cations to pass from the anode compartment to the cathode compartment and allowing anionic ions to pass from the cathode compartment to the anode compartment, whereby the water passed from the first electrolytic cell chamber through the anode compartment of the second electrolytic cell chamber turns to acidic silver-ionic water and the water passed from the first electrolytic cell chamber through the cathode compartment of the second electrolytic cell chamber turns to alkaline silver-ionic water.

4,755,269
PHOTODISSOCIATION PROCESS

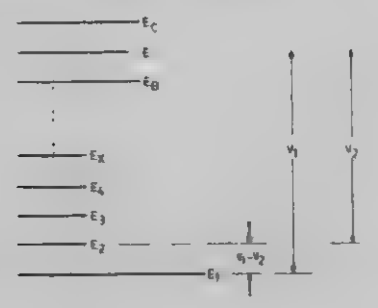
Paul Brumer, Willowdale, Canada, and Moshe Shapiro, Rehovot, Israel, assignors to Univ. of Toronto Innovations Foundation, Ontario, Canada

Filed Nov. 12, 1986, Ser. No. 930,344

Claims priority, application Canada, Nov. 12, 1985, 494993

Int. Cl.^{4} B01J *19/08*

U.S. Cl. 204—157.4 19 Claims



1. A process of conducting photodissociation of molecules in a known energy level E_I, said molecules having a plurality of possible photodissociation pathways, comprising raising said molecules from said level E_I to a predetermined energy level E in the continuum above the dissociation energy E_0 of the molecule along a plurality of different routes, each route requiring at least one frequency of phase coherent electromagnetic radiation, a frequency of phase coherent radiation pertaining to one such energy route being simultaneously applied with a frequency of phase coherent radiation pertaining to at least one other such route, the relative phase and the relative amplitude of the simultaneously applied frequencies of radiation being adjusted to control the degree to which respective photodissociation pathways are adopted.

4,755,270
METHOD OF PROCESSING SOLUTIONS

Joseph Aliotta, P.O. Box 186, Newton, Mass. 02161

Filed Apr. 17, 1987, Ser. No. 39,968

Int. Cl.^{4} C02F *1/00*

U.S. Cl. 204—157.42 7 Claims

1. A method of processing waste solution containing a suspension of heavy metals comprising the steps of placing the solution in a container, adjusting the solution to cause the metal to percipitate by chemical reduction, applying ultra-sonic vibrations to the container to mist the water, capturing the water vapor discharge from the container, and exhausting the vapor through a filter to capture any heavy metals in the water vapor.

4,755,271
ELECTROPLATING APPARATUS FOR PLATE-SHAPED WORKPIECES, PARTICULARLY PRINTED CIRCUIT BOARDS

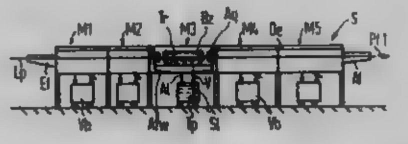
Daniel Houten, Handzame, Belgium, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jun. 1, 1987, Ser. No. 56,247

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1986, [illegible]

Int. Cl.^{4} C25D *17/00*

U.S. Cl. 204—198 21 Claims



1. In an apparatus for electroplating of plate-shaped workpieces, which includes printed circuit boards, said apparatus comprising a cell containing electrolyte solution, means for transporting a workpiece in a horizontal plane through the cell, at least one anode being arranged in the electrolytic solution in the cell, and means for cathodic contacting the workpiece moving through the cell, the improvements comprising the means for cathodic contacting being formed as a tong-shaped contact clamp and including means for moving the clamp with the workpiece through the cell.

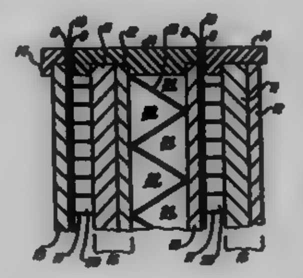
4,755,272
BIPOLAR ELECTROCHEMICAL CELL HAVING NOVEL MEANS FOR ELECTRICALLY CONNECTING ANODE AND CATHODE OF ADJACENT CELL UNITS

Keith R. Plowman, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 2, 1986, Ser. No. 859,177

Int. Cl.^{4} C25B *9/00, 13/02, 13/08*

U.S. Cl. 204—256 17 Claims



1. A bipolar assembly for a bipolar electrochemical cell comprising:

(a) anode and cathode electrodes, at least one of which is a gas diffusion electrode,

(b) a cell separator adjacent to said anode,

(c) an electrically non-conductive spacing means adjacent to said cathode, and

(d) means for electrically connecting said electrodes consisting of a corrugated, electrically conductive sheet having corrugations defining, in conjunction with said cathode, at least one first channel and defining, in conjunction with said anode, at least one second channel, said channels utilized to feed one or more gases or liquids to said electrodes.

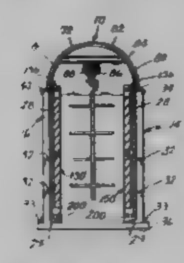
4,755,273
COVER FOR COATING TANKS

I. Jay Bassett, 500 Fountain, N.E., Grand Rapids, Mich. 49503, and Leo L. Case, 3045 Middleton Ct., Troy, Mich. 48084

Division of Ser. No. 815,822, Jan. 2, 1986, Pat. No. 4,663,014. This application Sep. 24, 1986, Ser. No. 911,111

Int. Cl.^{4} C25D *13/06*; B05C *3/00, 11/00*

U.S. Cl. 204—299 EC 5 Claims



1. In an enclosed painting/coating system adapted to receive workpieces for painting/coating including a tank for receiving a liquid coating material, the tank having sides, ends and a middle, and enclosed workpiece preparation areas and rinsing areas at the ends of said tank ahead of and following said tank, the improvement comprising:

cover means for covering said tank and workpiece preparation and rinsing areas, said cover means including an upwardly curved configuration extending from the top of the sides of said tank over the middle of said tank and having its greatest height over the middle of said tank and preparation and rinsing areas whereby condensation spray which collects on the inside of said cover means will run down the sides of said cover and enclosures for said areas and avoid dripping on prepared or panineted workpieces;

said cover means including movable panel means positioned adjacent said tank sides, said panel means being curved and contoured to and following the shape of said cover means and extending from adjacent at least one portion of the top of said tank sides to a position over said tank for providing access to the interior of said cover means and tank from adjacent said tank sides for maintenance purposes.

4,755,274
ELECTROCHEMICAL SENSING ELEMENT AND DEVICE INCORPORATING THE SAME

Syunzo Mase, and Shigeo Soejima, both of Aichi, Japan, assignors to NGK Insulators, Ltd., Japan

Continuation of Ser. No. 670,899, Nov. 13, 1984, abandoned. This application Sep. 10, 1986, Ser. No. 906,607

Claims priority, application Japan, Nov. 18, 1983, 58-218398; Jun. 6, 1984, 59-116226

The portion of the term of this patent subsequent to Apr. 1, 2003, has been disclaimed.

Int. Cl.^{4} G01N *27/58*

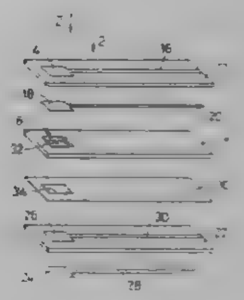
U.S. Cl. 204—427 27 Claims

1. An electrochemical device for determining the concentration of a component of a gaseous fluid, comprising:

an electrochemical pumping cell including a first planar solid electrolyte body, and a first and a second electrode formed on said first solid electrolyte body, said first solid electrolyte body comprising an oxygen ion-conducting material;

an electrochemical sensing cell including a second planar solid electrolyte body, and a third and a fourth electrode formed on said second solid electrolyte body, said second solid electrolyte body comprising an oxygen ion-conducting material; and

a porous electric resistive ceramic layer comprising an electric resistive ceramic material sandwiched between said pumping cell and said sensing cell, said porous electric resistive ceramic layer having a thickness of not greater than 300 microns and having a porosity which is sufficient to mitigate thermal stresses between the porous electric resistive ceramic layer and each of the solid electrolyte bodies and having substantially the same lateral and transverse dimensions to said first and second planar solid electrolyte bodies such that said porous electric resistive ceramic layer contacts both said first and second planar solid electrolyte bodies of said pumping cell and said sensing cell throughout said lateral and transverse dimensions thereof, said pumping and sensing cells and said porous electric resistive ceramic layer being co-fired into a laminar structure



4,755,275
ELECTRICAL INSULATING OIL

Atsushi Sato, Tokyo; Yoshikazu Murai, Yokohama; Tatsuo Yamaguchi, Hino; Kanji Mochizuki, and Kunio Sugisawa, both of Yokohama, all of Japan, assignors to Nippon Petrochemicals Company, Limited, Tokyo, Japan

Filed Feb. 5, 1985, Ser. No. 698,327

Claims priority, application Japan, Feb. 10, 1984, 59-21849; Feb. 10, 1984, 59-21850; Feb. 14, 1984, 59-24512

Int. Cl.^{4} C10L *1/10*; H01B *3/22*

U.S. Cl. 208—14 14 Claims

1. An electrical insulating oil comprising a reaction product having a boiling range of higher than 260° C., a kinetic viscosity not higher than 30 cSt at 75° C. and a pour point not higher than −40° C., obtained by treating a hydrocarbon feed at a reaction temperature in the range of 0° to 300° C. in liquid phase with an acid catalyst,

said hydrocarbon feed comprising a first distillate from a thermal-cracked oil obtained in a process of a delayed coking of a petrolic heavy residual oil at a temperature not lower than 400° C. and not exceeding 600° C.,

said first distillate consisting mainly of hydrocarbons boiling in the range of 120° to 290° C. and said first distillate containing at least 30 weight percent of paraffins, at least 10 weight percent of aliphatic olefins and 5–20 weight % of aromatic hydrocarbons,

and separating by distillation said reaction product from the resulting mixture containing at least said reaction product and unreacted hydrocarbons, and said boiling range of said reaction product being higher than the boiling range of said unreacted hydrocarbons

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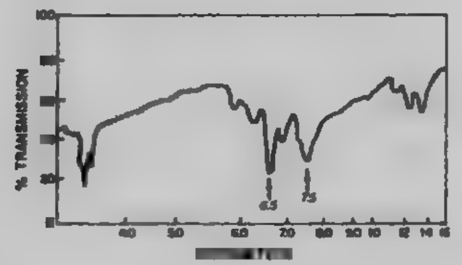
4,755,276
NITRO-SUBSTITUTED PITCH AND PROCESS FOR THE PRODUCTION THEREOF

Irwin C. Lewis, Strongsville, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.
Continuation of Ser. No. 625,368, Jun. 27, 1984, abandoned. This application Nov. 17, 1986, Ser. No. 936,733
Int. Cl.⁴ C10C *3/02*
U.S. Cl. 208—22 12 Claims



1. A carbonaceous pitch comprised of an aromatic component characterized in that said pitch further comprises at least 3 weight percent nitrogen in the form of nitro-functional groups which are bound to said aromatic component.

4,755,277
PROCESS FOR THE PREPARATION OF A HYDROCARBONACEOUS DISTILLATE AND A RESIDUE

Jacobus H. Breuker; Gerrit van Gooswilligen, and Johannes L. M. Syrier, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.
Filed Mar. 20, 1987, Ser. No. 28,520
Claims priority, application United Kingdom, Apr. 4, 1986, 8608301
Int. Cl.⁴ C10C *1/00;* C10L *1/00*
U.S. Cl. 208—40 7 Claims

1. A process for the preparation of a hydrocarbon product comprising (1) at least one hydrocarbonaceous distillate and (2) a hydrocarbonaceous residue by the process steps of:

(a) catalytically cracking a hydrocarbonaceous feedstock in the presence of a catalyst to catalytically crack said hydrocarbonaceous feedstock and to produce a cracked product comprising a residual hydrocarbonaceous fraction;

(b) separating said residual hydrocarbonaceous fraction from said cracked product and mixing said recovered residual fraction with a hydrocarbon fraction selected from the group consisting of long residue, short residue, a thermally cracked residue, a solvent extract of lubricating oil fraction, deasphalted oil and deasphalted bitumen, and having a boiling range where at least 50%w of said hydrocarbon fraction has a boiling point above 400° C. to produce a residual fraction and hydrocarbon fraction mixture wherein the weight ratio between said hydrocarbon fraction and said recovered residual fraction in said residual fraction and said hydrocarbon fraction mixture is between 1:9 and 9:1; and

(c) distilling said residual fraction and hydrocarbon fraction mixture in a subatmospheric distillation zone at subatmospheric distillation conditions to produce at least one hydrocarbonaceous distillate fraction and at least one hydrocarbonaceous residue.

4,755,278
PROCESS FOR FRACTIONATING SOLID ASPHALTS

Pierre Baumgartner, Grenoble, France, assignor to Institut Français du Petrole, Rueil-Malmaison, France
Filed Feb. 26, 1987, Ser. No. 19,262
Claims priority, application France, Feb. 26, 1986, 86 02782
Int. Cl.⁴ C10C *1/18*
U.S. Cl. 208—45 16 Claims

1. A process for fractionating asphaltene- and resin-containing solid asphalt, comprising the following steps of:

(a) suspending asphaltene- and resin-containing solid asphalt particles into an aqueous phase containing at least one surfactant,

(b) extracting the solid asphalt suspension obtained in step (a) with a selective hydrocarbon solvent for resins, so as to yield a resin-containing hydrocarbon phase and an aqueous suspension of asphalt enriched in asphaltenes and having an increased softening point with respect to the asphalt of step (a),

(c) separating the resultant hydrocarbon phase from the aqueous suspension and

(d) fractionating the resin-containing hydrocarbon phase of step (c) to recover the solvent and resin separately, whereby said resin has a softening point lower than that of the initial asphalt.

4,755,279
PROCESS FOR THE MANUFACTURE OF LUBRICATING OILS

Eugene E. Unmuth, Naperville; John A. Mahoney, Glen Ellyn, and Ralph J. Bertolacini, Naperville, all of Ill., assignors to Amoco Corporation, Chicago, Ill.
Filed Dec. 24, 1984, Ser. No. 686,096
The portion of the term of this patent subsequent to Dec. 24, 2003, has been disclaimed.
Int. Cl.⁴ C10G *67/04*
U.S. Cl. 208—87 24 Claims

12. A process for reducing the pour point of a hydrocarbon feedstock containing nitrogen and sulfur-containing compounds which comprises:

passing the hydrocarbon feedstock to a solvent extraction zone wherein the hydrocarbon feedstock is extracted with a solvent to remove a portion of the aromatic compounds contained in the hydrocarbon and thereby form an extraction zone raffinate;

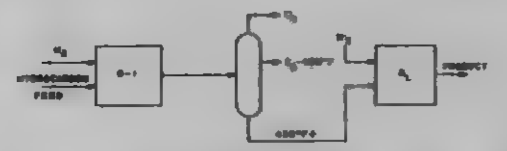
passing at least a portion of the extraction zone raffinate to a hydrotreating zone wherein hydrogen is contacted with hydrocarbon feedstock in the presence of a hydrotreating catalyst at hydrotreating conditions wherein a substantial portion of the nitrogen and sulfur-containing compounds are converted to hydrogen sulfide and ammonia to form a hydrotreating zone effluent;

passing at least a portion of the effluent from the hydrotreating zone to a stripping zone wherein hydrogen sulfide and ammonia are removed from the hydrotreating zone effluent to form a stripping zone effluent;

passing at least a portion of the stripping zone effluent containing less than about 10 ppmw nitrogen-containing compounds based on nitrogen and less than about 20 ppmw sulfur-containing compounds based on sulfur to a dewaxing zone wherein hydrogen is contacted with the stripping zone effluent at catalytic dewaxing conditions in the presence of a catalyst composition comprising a borosilicate molecular sieve and a hydrogenation component selected from the group consisting of Group VIB and Group VIII metals.

4,755,280
PROCESS FOR IMPROVING THE COLOR AND OXIDATION STABILITY OF HYDROCARBON STREAMS CONTAINING MULTI-RING AROMATIC AND HYDROAROMATIC HYDROCARBONS

Carl W. Hudson, and Glen P. Hamner, both of Baton Rouge, La., assignors to Exxon Research and Engineering Company, Florham Park, N.J.
Filed Jul. 31, 1985, Ser. No. 760,962
The portion of the term of this patent subsequent to Dec. 6, 2003, has been disclaimed.
Int. Cl.⁴ C10G *65/12, 45/00*
U.S. Cl. 208—89 22 Claims



1. A process for improving the color and oxidation stability of a feed characterized as an admixture of hydrocarbons, inclusive of hydrocarbons selected from the group consisting of fused multi-ring aromatic hydrocarbons, and fused multi-ring hydroaromatic hydrocarbons, said feed containing organic sulfur and organic nitrogen in concentrations greater than 10 wppm organic sulfur, greater than 10 wppm organic nitrogen, or greater than 10 wppm organic sulfur and greater than 10 wppm organic nitrogen, and having a high end point boiling below about 538° C. and a low end boiling point above about 224° C., which comprises in combination,

contacting said feed, and hydrogen, over a hydrotreating catalyst and hydrotreating said feed at hydrotreating conditions,

separating sulfur as hydrogen sulfide, or nitrogen as ammonia, or separating both sulfur as hydrogen sulfide and nitrogen as ammonia, from the hydrotreated reaction product, and

distilling said hydrotreated product to obtain a high boiling fraction, and

contacting said high boiling hydrotreated product fraction from which sulfur, and nitrogen have been removed to less than 10 wppm organic sulfur and less than 10 wppm organic nitrogen, as a feed, in the presence of hydrogen, over a catalyst comprised of elemental iron and one or more alkali or alkaline-earth metals components at a temperature ranging from about 225° C. to about 430° C. and hydrogen partial pressure ranging from about 0 psig to about 1000 psig at temperature sufficient to improve product color, or stabilize the product of said reactor against light and oxygen degradation, or both.

4,755,281
COUNTERCURRENT PROCESS WITH FROTH CONTROL FOR TREATING HEAVY HYDROCARBONS

Joe E. Penick, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Division of Ser. No. 605,740, May 1, 1984, Pat. No. 4,550,012. This application Oct. 18, 1985, Ser. No. 789,219
Int. Cl.⁴ C10G *13/10, 13/06*
U.S. Cl. 208—108 12 Claims

1. In the process for catalytic hydrocracking, dewaxing or desulfurizing of heavy petroleum feedstock in a multi-phase catalytic reaction zone containing a fixed porous bed of solid catalyst particles; the improvement which comprises:

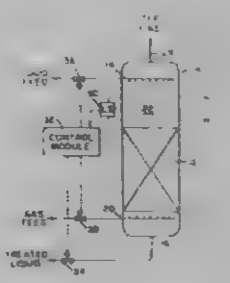
introducing the heavy feedstock predominately in liquid phase under superatmospheric process conditions at elevated temperature and distributing the feedstock uniformly over the catalyst bed for downward flow in contact with the catalyst;

introducing a pressurized reactant gas rich in hydrogen below the catalyst bed at a rate to establish countercurrent contact dispersed in downcoming liquid;

disengaging upwardly flowing dispersed gas from feedstock above the catalyst bed;

controlling froth level to prevent substantial entrainment of liquid in disengaged gas by measuring froth level in the froth zone and generating a control signal representative of said froth level, regulating flow of the petroleum and/or the inflow of the pressurized reactant gas in response to the control signal; and

recovering treated petroleum and offgas



4,755,282
PROCESS FOR THE REDUCTION OF NH_3 IN REGENERATION ZONE OFF GAS BY SELECT RECYCLE OF CERTAIN-SIZED NH_3 DECOMPOSITION CATALYSTS

Norman C. Samish, Houston, and John E. Gwyn, Katy, both of Tex., assignors to Shell Oil Company, Houston, Tex.
Filed Jul. 22, 1987, Ser. No. 76,470
Int. Cl.⁴ C10G *11/18;* B01J *8/02*
U.S. Cl. 208—113 23 Claims

19. In a process for the fluidized catalytic cracking of a higher molecular weight hydrocarbon to a lower molecular weight hydrocarbon which process comprises:

(a) contacting, in a cracking zone, said higher molecular weight hydrocarbon with a cracking catalyst, wherein said cracking catalyst becomes deactivated with coke deposits while being employed in said cracking;

(b) withdrawing deactivated cracking catalyst particles from said cracking zone having said coke deposited thereon and passing said coked catalyst to a regeneration zone containing an ammonia decomposition catalyst and an inlet means for admission to said regeneration zone of a sufficient quantity of an oxygen-containing gas to operate said regeneration zone in a mode of partial combustion as defined by the presence of from 1 to 6 volume percent of CO in the regeneration zone;

(c) contacting the coke-deposited cracking catalyst with said oxygen-containing gas in the presence of said ammonia decomposition catalyst comprising a noble metal dispersed on an alumina support to form a regeneration zone

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effluent stream comprising spent regeneration gas, regenerated catalyst, and ammonia decomposition catalyst;

(d) withdrawing said regeneration zone effluent stream from said regeneration zone and passing said regeneration zone effluent stream to a separation means wherein said spent regeneration gas, regenerated catalyst and ammonia decomposition catalyst are separated and wherein said spent regeneration gas is passed to a CO combustion zone;

(e) combusting said spent regeneration gas in said CO combustion zone in the presence of an oxygen-containing gas to form CO_2, hydrogen and water vapor; and

(f) passing said CO_2, hydrogen and water vapor to ambient air as emissions from said process, with a reduced amount of NO_x as a result of the improvement of said process which consists of separating said ammonia decomposition catalyst in step (d) from said regenerated catalyst and spent regeneration gas in said separation means to attain a stream containing said ammonia decomposition catalyst in a select size of from 10 to 40 microns and recycling said select sized ammonia decomposition catalyst either to (1) said regeneration zone or (2) said regeneration effluent stream intermediate to said regeneration zone and said CO [redacted]

[redacted]

FLUID CATALYTIC CRACKING OF HEAVY [redacted]

Hideo Hashimoto, Sagamihara; Toru Takatsuka, Yokohama; Shuzo Satoh, Kanagawa, and Yasuyuki Morimoto, Yokohama, all of Japan, assignors to Chiyoda Chemical Engineering & Constr., Japan

Filed Dec. 5, 1986, Ser. No. 938,450

Int. Cl.⁴ C10G *11/05*

U.S. Cl. 208—120 **5 Claims**

1. A method of cracking a heavy hydrocarbon oil containing a residual fraction with a boiling point of 538° C. or higher, said method comprising contacting the heavy hydrocarbon oil with a fluidized bed of a particulate composite catalyst which includes an amorphous refractory inorganic oxide and a crystalline aluminosilicate dispersed in said oxide, said crystalline aluminosilicate having a surface area distribution such that the surface area of pores having pore diameters in the range of from three times to six times the average molecular size of said residual fraction is at least 60% of the surface area of pores having pore diameters in the range of 15–150 Å.

[redacted]

[redacted]

Derrick W. Brooks, Radcliffe-on-Trent, and Christopher P. Morris, Carlton, both of United Kingdom, assignors to Hambra Machinery Limited, United Kingdom

Continuation of Ser. No. 722,352, Apr. 12, 1985, abandoned. This application Jul. 10, 1987, Ser. No. 73,398

Claims priority, application United Kingdom, Apr. 14, 1984, 8409766

Int. Cl.⁴ B07B *4/08, 9/02;* A24B *3/16*

U.S. Cl. 209—20 **20 Claims**

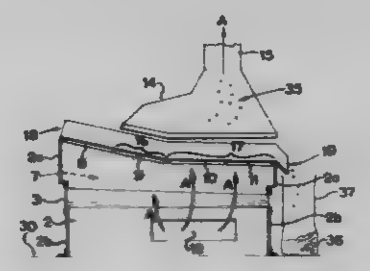
1. An elutriator for separating different grades of leaf vegetable material, comprising:

means defining an elutriation zone of predetermined area for receiving the material;

fluid distribution means disposed below said elutriation zone for providing a flow of gaseous medium upwardly into said zone;

gaseous supply means operative to supply a gaseous medium to said fluid distribution means; and

said fluid distribution means providing a flow of gaseous medium to said zone at a velocity greater than the terminal velocity of at least one grade of the material to be separated, and substantially uniform throughout the area of said zone, so that the average velocity throughout said zone is substantially the same as the minimum and maximum velocities,



permitting elutriation at relatively reduced velocities and thereby improving the efficiency of the separation.

[redacted]

[redacted] PHOSPHATE MINERAL, AND A REAGENT INTENDED [redacted]

Anders Weckman, Helsinki; Esko T. Kari, Espoo, and Jarmo Aaltonen, Siilinjärvi, all of Finland, assignors to Kemira Oy, [redacted]

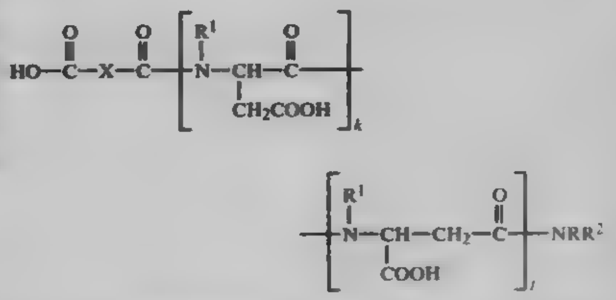
Filed Apr. 11, 1986, Ser. No. 850,814

Claims priority, application Finland, Oct. 10, 1985, 853942

Int. Cl.⁴ B03D *1/02*

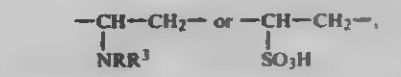
U.S. Cl. 209—166 **3 Claims**

1. A process for the separation of phosphate minerals from a phosphate ore comprising froth flotation of the phosphate minerals in the presence of a reagent which is selective with respect to the phosphate minerals, said reagent being selected from the group consisting of compounds having the general formula



$$\mathrm{HO{-}\overset{O}{\overset{\|}{C}}{-}X{-}\overset{O}{\overset{\|}{C}}}\left[\mathrm{\overset{R^1}{\overset{|}{N}}{-}\underset{CH_2COOH}{\underset{|}{CH}}{-}\overset{O}{\overset{\|}{C}}}\right]_k\left[\mathrm{\overset{R^1}{\overset{|}{N}}{-}\underset{COOH}{\underset{|}{CH}}{-}CH_2{-}\overset{O}{\overset{\|}{C}}}\right]_l\mathrm{{-}NRR^2}$$

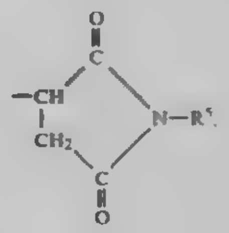
or a salt or amide R^4NHC— thereof, wherein X is —CH CH—,



$$\mathrm{-\underset{NRR^3}{\underset{|}{CH}}-CH_2-}\ \text{or}\ \mathrm{-\underset{SO_3H}{\underset{|}{CH}}-CH_2-},$$

k is a number 0–40, and l is a number 0–40, provided, however, that $k+l=1–40$,

R is H, R^2 or



R^1, R^2, R^3, R^4 and R^5 may be the same or different and are selected from the group consisting of aromatic, araliphatic, and straight or branched aliphatic hydrocarbon groups having 1–30 carbon atoms, and straight or branched aliphatic hydrocarbon having 1–30 carbon atoms and including an ether linkage or hydroxyl substituent.

[redacted]

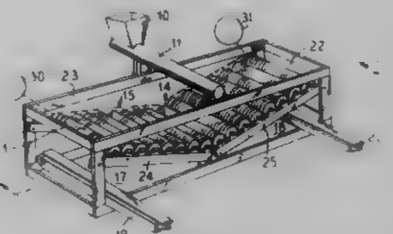
SPLIT FLOW 'V' SCREEN

Joseph B. Bielagus, Tualatin, Oreg., assignor to Beloit Corporation, Beloit, Wis.

Filed Jul. 30, 1987, Ser. No. 79,858

Int. Cl.⁴ B07B *1/16*

U.S. Cl. 209—243 **12 Claims**



1. A mechanism for screening large flows of wood chips, comprising in combination:

a screening bed having a width for receiving the delivery of a quantity of wood chips at a screening receiving station;

means for distributing the large flow of wood chips substantially evenly over said screening receiving station, said distributing means extending over substantially the entire width of said screening bed;

a first lateral bed section extending laterally and upwardly defining a first screening path extending from said station to a first delivery end spaced from said station, said first screening path including means for passing rejected chips off said first lateral bed section at said first delivery end;

a second lateral bed section defining a second screening path extending laterally and upwardly from said station in a direction opposite said first bed section to a second delivery end spaced from said station, said second screening path including means for passing rejected chips off said second lateral bed section at said second delivery end;

each of said bed sections including a plurality of shafts extending transversely of said path and rotatable in a common direction within each section;

each shaft having a plurality of screening disks on the shaft and interdigitally related to screening disks on adjacent shafts whereby chips proceed to be screened as they are moved laterally and upwardly in both screen paths from the common receiving station toward said first and second delivery ends; and

disks of an end shaft of said first bed section interdigitating with disks of an end shaft of said second bed section and said interdigitated disks of said end shafts of said first and second bed sections forming said screening receiving station.

4,755,287

FIVE STAGE INTERNAL CELL SEPARATOR

Wendy L. Jones, Box 376, 111 2nd Ave., N.W., Arlington, Minn. [redacted]

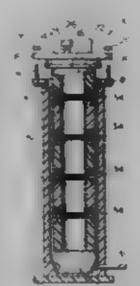
Filed Apr. 10, 1987, Ser. No. 37,269

Claims priority, application Canada, Sep. 10, 1986, 517923

Int. Cl.⁴ B07B *1/04*

U.S. Cl. 209—355 **8 Claims**

1. A cell separator comprising elongated, tubular casing means, said casing means having an open upper end and a closed lower end; elongated, tubular column means for insertion into said casing means; said column means having a closed upper end and an open lower end; said column means including a plurality of separate, interconnectable tubular sections adapted to releasably support filter means between adjacent sections, and flange means on the uppermost section for sealing engagement with the upper end of said casing means; inlet duct means in said closed upper end of said column means for introducing cells in a liquid medium into said column means; and outlet duct means in said casing means beneath the lower end of said column means for discharging liquid from said casing means, whereby said column means can be inserted and removed from said casing means as a unit, and disassembled from the upper or lower end thereof.



[redacted]

APPARATUS AND SYSTEM FOR MAGNETICALLY [redacted]

John Mitchell, deceased, late of Palm Springs, Calif., and by Charles E. Ament, executor, 33 Pondview Rd., Rye, N.Y. 10580

Filed Sep. 12, 1986, Ser. No. 906,975

Int. Cl.⁴ C02F *1/48;* B01D *35/06*

U.S. Cl. 210—85 **10 Claims**

1. A system for treating fluid as said fluid flows through the inner portion of a conduit with a magnetic force field, said system including:

(a) means for generating a magnetic force field in said conduit including at least a first magnet, a second magnet and a third magnet oriented, respectively, to introduce into the inner portion of said conduit a discrete south magnetic field, a discrete north magnetic field, and a discrete south magnetic field;

(b) sensor means responsive to a change in value characterized by a reduction in strength of the magnetic force field generated by said means for generating; and

(c) means responsive to said sensor means for reversing said change in said value characterized by restoration of said strength of said magnetic field generated by said means for generating.

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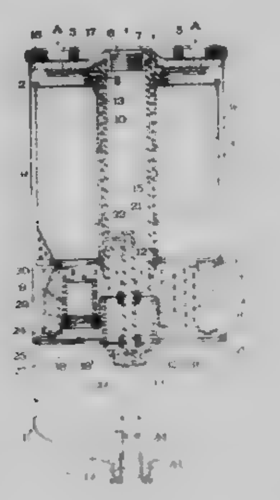
[illegible]

LUBRICANT FILTER FOR INTERNAL COMBUSTION ENGINES

Franco Villani, Turin, Italy, assignor to Tecnocar S.p.A., Turin, [illegible]

Filed Nov. 13, 1986, Ser. No. 930,709
Claims priority, application Italy, Jun. 27, 1986, 67515 A/86
Int. Cl.⁴ B01D *35/00*
U.S. Cl. 210—132 **14 Claims**



1. A filter for internal combustion engines, comprising a bowl having a convex bottom wall and an upper open end and containing filter cartridge means for filtering a lubricant, a cover for closing said upper open end of said bowl, said cover having a plurality of eccentric inlet apertures for lubricant to be filtered and being formed with a pair of outlet apertures for filtered lubricant, one centrally formed in said cover and another radially outwardly of said one aperture, a sleeve extending axially from said cover toward said bottom wall of said bowl, sealing means between an outer surface of said sleeve and said filter cartridge means for insulating the flow of filtered lubricant and feeding it to said outlet apertures, a reservoir for lubricant additives within said bowl but externally of the confines of said sleeve and communicating with said filter cartridge means through a feed opening operably closed by a check valve, and through a discharge duct solely for additives, operably closed by an on-off valve actuable to mix said additives in said reservoir with filtered lubricant, and to this end said discharge duct for said additives being operatively connected between said resevoir and said filter cartridge means for supply by said discharge duct of additives in said reservoir to said filter cartridge means for mixture of said additives with filtered lubricant on opening said on-off valve.

4,755,290
APPARATUS FOR CONTINUOUSLY FILTERING PLASTIC MELT WITH NONINTERRUPTIVE PURGE

Clayton L. Neuman, 11440 Olive St., Coon Rapids, Minn. 55433, and Donald J. Reum, 330 Sixth St., Albany, Minn. 56307

Filed Nov. 13, 1986, Ser. No. 930,734
Int. Cl.⁴ B01D *29/38, 35/12*
U.S. Cl. 210—138 **24 Claims**

1. Apparatus for filtering a flow of melted plastic, comprising

housing means;

filter means in the housing means having upstream and downstream sides,

inlet means for supplying unfiltered plastic to the upstream side of the filter means;

first outlet means communicating with the downstream side of the filter means for discharging filtered plastic;

purging means for causing a reverse purge flow of a portion of the filtrate through the filtering means from the downstream to the upstream side thereof to purge contaminants therefrom;

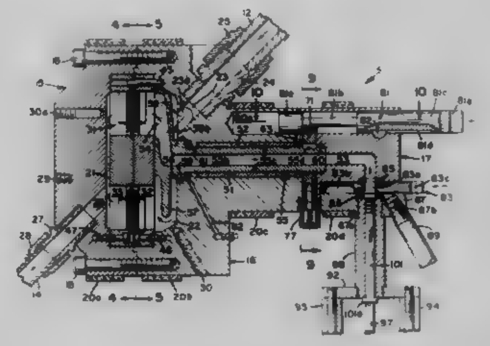
second outlet means for discharging the contaminant-filled purge flow from the housing;

purge chamber means defining a chamber for receiving a finite quantity of the contaminant-filled purge flow from the purging means;

discharge means associated with the purge chamber means for causing said finite quantity to be discharged from the purge chamber means into said second outlet;

and valve means for selectively establishing exclusive communication between the purging means and the purge chamber means, and between the purge chamber means and the second outlet means.

10. A segmented filter assembly for filtering a flow of melted plastic, comprising:



a trap plate having means defining a plurality of openings therethrough arranged in a generally circular array, each opening defining a segment of a circle, and a plurality of spaced bars disposed in and traversing each segmented opening to define a plurality of passages through which larger contaminants cannot pass;

a breaker plate having means defining a like plurality of openings of segmented circular configuration registrable with the openings of the trap plate, and further comprising a plurality of spaced bars in each segmented opening to define a plurality of passages therethrough;

and a plurality of filter means each having a segmented configuration corresponding in size to the segmented openings of the trap and breaker plates and disposed between opposed registering segmented openings of the trap and breaker plates.

4,755,291
FILTRATION AND WASHING APPARATUS WITH ADJUSTABLE ROTARY FILTRATION CYLINDER

Chung Y. Lee, 375-21, Daebang-dong, Dongjak-ku, Seoul, Rep. of Korea

Filed Jan. 29, 1987, Ser. No. 8,010
The portion of the term of this patent subsequent to Oct. 7, 2003, has been disclaimed.
Int. Cl.⁴ B01D *33/06*
U.S. Cl. 210—179 **9 Claims**

1. A filtration apparatus for the treatment of liquid-containing waste material which comprises:

a housing means,

a rotary filtration cylinder disposed in said housing means having a surface which contains means defining a plurality of holes for receiving waste material to be treated and filtered,

a tapered rotary cylinder rotatably disposed within said rotary filtration cylinder for rotating and conveying said waste material, wherein said rotary filtration cylinder and

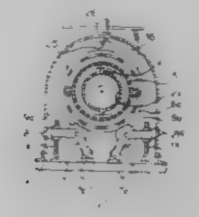
said tapered rotary cylinder define a treatment zone therebetween,

waste material inlet means operatively associated with said housing means and said rotary filtration means for introducing waste material to be treated into said treatment zone,

waste material outlet means operatively associated with said housing means and said rotary filtration means for removing waste material that has been treated from said treatment zone,

steam supplying means operatively associated with said housing means,

steam injection means fluidly communicating with said steam supplying means and said tapered rotary cylinder for introducing hot steam from said steam supplying means into said tapered rotary cylinder, wherein said tapered rotary cylinder is heated thereby heating said treatment zone and said waste material therein,



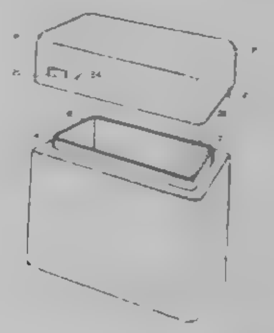
a fixed steam cleaning pipe disposed contained in said housing means outside said rotary cylinder and fluidly communicating with said steam supplying means for washing said rotary filtration cylinder, said fixed steam cleaning pipe having a plurality of nozzles, wherein said fixed steam cleaning pipe sprays and washes clean said rotary filtration cylinder with hot steam through said nozzles with steam from said steam supplying means, and

adjustment means provided in said housing means for adjusting the dimensions of said treatment zone between said rotary filtration cylinder and said tapered rotary cylinder.

4,755,292
PORTABLE ULTRAVIOLET WATER STERILIZER

Theodore D. Merriam, 155 Gleason Lake Rd., #404, Wayzata, Minn. 55391

Filed Aug. 11, 1986, Ser. No. 895,152
Int. Cl.⁴ C02F *1/32*
U.S. Cl. 210—192 **5 Claims**



1. A portable apparatus for exposing liquid to ultraviolet radiation comprising:

a housing including a bottom portion having an inside surface forming a reservoir, a reflective, rigid and liquid impermeable container for said liquid, substantially conforming to the shape of the reservoir, removably insertable into the reservoir, and contiguous with at least the majority of said inside surface when so inserted;

a unitary top portion of said housing removably mated to the bottom portion and providing a substantially light-tight cover over the reservoir; and

means defining an ultraviolet radiation source for providing ultraviolet radiation to the reservoir mounted with respect to said top portion and contained within said top portion entirely above said bottom portion, and a power supply means contained within said housing for providing power to said radiation source

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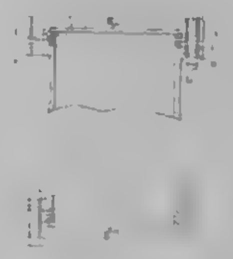
4,755,293
HIGH DENSITY FILLER TYPE FILTRATION EQUIPMENT

Kiyoaki Sakamoto, Hofu, and Yasuhiro Nakahara, Yamaguchi, both of Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Shinnanyo, Japan

Filed Jul. 27, 1987, Ser. No. 77,893
Claims priority, application Japan, Jul. 25, 1986, 61-175263
Int. Cl.⁴ B01D *15/08*
U.S. Cl. 210—198.2 **7 Claims**



1. High density filler type filtration equipment for liquid chromatography comprising.

an elongate cylindrical chromatography column body having at least an upper open end, flange means adjacent said open end and an annular extension extending beyond said flange means in a direction of the length of said column body;

a cover having a fluid path.

a partition membrane;

means for mounting said partition membrane to said cover;

a seal ring mounted to said cover and comprising means for sealing said open end of said column body when said cover is placed on said open end, wherein said annular extension and said seal ring overlap one another by a predetermined length when said cover is placed on said open end and wherein said annular extension and said seal ring are sized such that said annular extension defines a guide face along which said seal ring sealingly slides as said cover is placed on said open end, and

means for locking said cover on said open end

4,755,294
STATIONARY PHASE, PREPARATION THEREOF AND CHROMATOGRAPHIC COLUMN CONTAINING SAME

Benoit Pradet, Vanves; Jean M. Colin, Le Havre; Robert Rosset, Paris, and Gisèle Vion, Harfleur, all of France, assignors to Societe Anonyme dite Compagnie Francaise de Raffinage, Paris, France

Filed Nov. 5, 1985, Ser. No. 795,243
Claims priority, application France, Nov. 6, 1984, 84 16863
Int. Cl.⁴ B01D *15/08;* **B01J** *13/00;* **B05D** *7/00;* **B32B** *19/00*
U.S. Cl. 210—198.2 **30 Claims**

1. A method of preparing a silica gel grafted with amine and alkyl groups, useful as a stationary phase packing material of a chromatographic column intended for the liquid phase separation of components, comprising the steps of:

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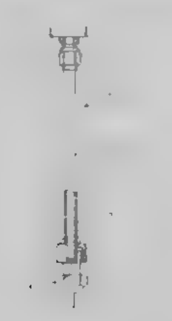
(a) deionizing virgin silica in an acidic bath with agitation;
(b) first drying the deionized virgin silica by heating it for several hours under vacuum at a temperature from 160° to 200° C.;
(c) first grafting the dried silica with amine type functional groups; (d) hydrolyzing the first grafts by means of a hydrolyzing bath effective to provide reactive terminal silanol groups at least partially on said first grafts;
(e) second drying the silica so hydrolized; and



(f) second grafting the dried silica with substituted or unsubstituted alkyl type functional groups.

10. A method of preparing a stationary silica phase according to claim 1, wherein the first grafts are hydrolyzed through a progressive treatment in a hydrofuran bath with agitation, gradually adding water to the mixture and finally replacing the hydrofuran/water mixture completely with water.

15. A chromatographic column comprising a stationary phase prepared by the method according to claim 1.

4,755,295
MULTISTAGE ARRANGEMENT FOR COUNTERCURRENT SEPARATION AND METHODS OF [redacted]

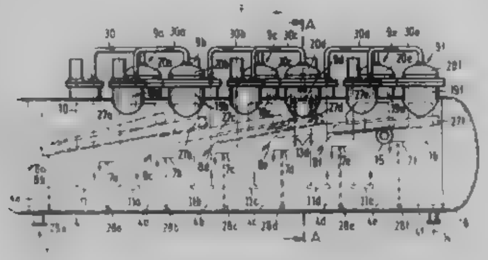
Friedrich Donhauser, Amberg; Anton Schoengen, Witten; Johann H. Shroeder, Dortmund, and Jörg Porschen, Düren, all of Fed. Rep. of Germany, assignors to Amberger Kaolinwerke GmbH and Dynamit Nobel AG

Division of Ser. No. 948,049, Dec. 31, 1986, Pat. No. 4,707,274. This application Jul. 31, 1987, Ser. No. 80,746

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1986, 3600522; Feb. 27, 1986, 3606259; Nov. 22, 1986, 3639958

Int. Cl.⁴ B01D *17/038*

U.S. Cl. 210—512.2 **24 Claims**



1. A multistage arrangement comprising: means for countercurrent separation of suspended solids having phisical properties similar to terephthalic acid, including groups of one or more hydro-cyclone separators connected parallel to each other, each group of hydro-cyclone separators defining a stage, the hydro-cyclone separator groups being arranged in series and including corresponding pumps and pump wells, and pipe lines connecting the hydro-cyclones, pumps and pump wells, means for feeding separating fluid in the countercurrent to the direction of feeding of the suspended solids, and means for treating suspended solids are under increased pressure and a substantially constant temperature, and a common, pressure-proof and heat-insulated vessel defining a chamber for housing the hydro-cyclone groups, the pump wells and the pump or pump components projecting into the wells.

4,755,296
INTEGRATED BIOLOGICAL-ADSORPTION PROCESS FOR TREATING WASTE WATER

Wei-Chi Ying, Grand Island; Stanley A. Sojka, Buffalo, and Vernon J. Lloyd, Lewiston, all of N.Y., assignors to Occidental Chemical Corporation, Niagara Falls, N.Y.

Continuation of Ser. No. 714,435, Mar. 21, 1985, abandoned. This application Oct. 16, 1986, Ser. No. 919,553

Int. Cl.⁴ C02F *3/02*

U.S. Cl. 210—631 **5 Claims**

1. The method for treating process wastewaters and chemical waste landfill leachates containing (1) non-biodegradable halogenated organic compounds; (2) inorganic metal contaminants including iron and its compounds and (3) biodegradable halogenated and non-halogenated organic compounds, to remove said (1), (2) and (3) from the wastewaters or leachates, to produce a liquid discharge capable of being assimilated in the natural environment without adverse effects, which comprises:

1. introducing the wastewater containing the contaminants to be treated into an equalization zone to produce a substantially equalized wastewater and to allow for sedimentation and removal of undissolved solids;
2. transferring the equalized wastewater containing said (1) non-biodegradable halogenated organic compounds; (2) inorganic metal contaminants and (3) biodegradable halogenated and non-halogenated organic compounds to a pre-treatment zone to produce a pretreated wastewater, subjecting the pretreated water to neutralization until a pH within the range of 6.5 to 8.5 is reached and to oxidation by aeration for a period of about 2 hours to produce a neutralized and oxidized liquid and to cause conversion of the metal contaminants to metal hydroxide contaminants and precipitation of said metal hydroxide contaminants which adsorb a significant proportion of the non-biodegradable halogenated organic compounds and separating the precipitates so formed containing the non-biodegradable halogenated compounds from the neutralized and oxidized liquid;
3. transferring the neutralized and oxidized liquid, produced in Step 2, to a sequencing batch reactor biological treatment zone containing acclimated activated sludge to remove substantially all the biodegradable organic constituents in the liquid;
4. transferring the bio-treated liquid to an adsorption treatment zone employing activated carbon in amounts which are less than about 10% of that required when not employing the above Step 3 thereby removing substantially all the organic contaminants not removed by the above Step 2, to produce a discharge acceptable to the natural environment.

4,755,297
CONTINUOUS COUNTERCURRENT MEMBRANE COLUMN FOR THE SEPARATION OF SOLUTE/SOLVENT AND SOLVENT/SOLVENT SYSTEMS

Bruce A. Nerad, Longmont, and William B. Krantz, Boulder, both of Colo., assignors to University Patents, Inc., Westport, Conn.

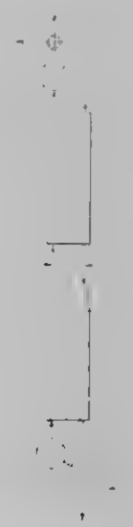
Filed Nov. 14, 1986, Ser. No. 931,328

Int. Cl.⁴ B01D *13/00*

U.S. Cl. 210—637 **11 Claims**

9. A membrane system for treating a feed stream containing a fluid solution comprising at least two components to yield at least one product stream enriched in at least one component relative to the feed stream, said system comprising:

(a) a first and a second continuous countercurrent membrane column arranged serially one to the other, each column having a membrane selectively permeable to at least one component in the feed stream to said column, said membrane extending through the interior cavity of the column to separate the column into a high pressure side and a low pressure side;
(b) the first membrane column having an effluent stream on the low pressure side of the column, said stream becoming the feed stream to the high pressure side of said second membrane column;
(c) the second membrane column having an effluent stream on the low pressure side of the column, said stream becoming the feed stream to the high pressure side of the first column;



(d) pumping means in each of said effluent lines streams to cause the fluids in the streams to be pumped against a pressure gradient;
(e) an effluent stream on the high pressure side of each column for withdrawing product enriched streams from said columns;
(f) means for selectively refluxing at least a portion of the product enriched stream from said columns to the low pressure side of the columns; and
(g) a feed stream for introducing the fluid solution having at least two components to said system.

4,755,298
PROCESS FOR REMOVING BORON IONS FROM AQUEOUS SOLUTIONS

Robert R. Grinstead, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

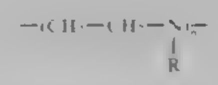
Filed Dec. 4, 1986, Ser. No. 937,768

Int. Cl.⁴ B01D *13/00*

U.S. Cl. 210—638 **20 Claims**

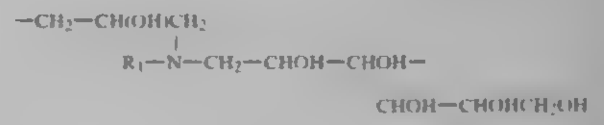
1. An improved cyclic process for removal of boron-containing ions from a fluid stream comprising boron-containing ions, which process comprises:

(A) contacting the fluid stream in a contacting zone with an aqueous reaction solution at between about 10° C. and 90° C. for a time sufficient to chelate the boron-containing ions, the reaction solution itself comprising an effective amount of water-soluble organic polymeric chelant selected from organic polymeric chelants of the formula:


(I)

$$-(CH_2-CH_2-\underset{\displaystyle R}{\underset{|}{N}})_n-$$

wherein R in each unit of the polymer is independently selected from —H or a substituent selected from

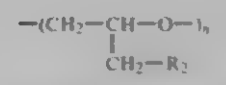


$$-CH_2-CH(OH)\underset{\displaystyle R_1-N-CH_2-CHOH-CHOH-CHOH-CHOHCH_2OH}{\underset{|}{CH_2}}$$

wherein
R_1 is alkyl having from 1 to 10 carbon atoms, or

$-CH_2-CH(OH)CH_2-NH-C(CH_2OH)_3$

and
n is an integer between about 5 and 20,000;


(II)

$$-(CH_2-\underset{\displaystyle CH_2-R_2}{\underset{|}{CH}}-O-)_n$$

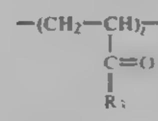
wherein R_2 in each unit of the polymer is independently selected from —OH, —Cl, or a substituent

$$R_1-\overset{|}{N}-CH_2-CHOH-CHOH-CHOH-CHOH-CH_2OH$$

wherein
R_1 is alkyl having from 1 to 10 carbon atoms; or

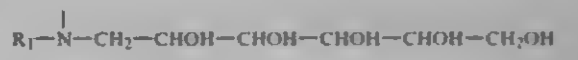
$-NH-C(CH_2OH)_3$

and
n is an integer between about 5 and 20,000,


(III)

$$-(CH_2-\underset{\displaystyle R_3}{\underset{|}{\underset{\displaystyle C=O}{\underset{|}{CH}}}})_l-$$

wherein R_3 in each unit of the polymer unit is independently selected from —OH, —OR'$_1$ or a substituent



$$R_1-\overset{|}{N}-CH_2-CHOH-CHOH-CHOH-CHOH-CH_2OH$$

wherein
R_1 and R'_1 are each independently alkyl having from 1 to 10 carbon atoms; or from OH^- or a substituent

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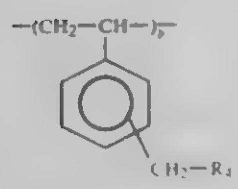
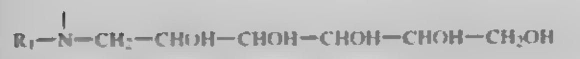
—NH—C(CH₂OH)₃,

and
t is an integer between about 10 and 20,000;


(iv)

where
R_4 in each unit of the polymer unit is independently selected from —OH, —Cl, or a substituent:

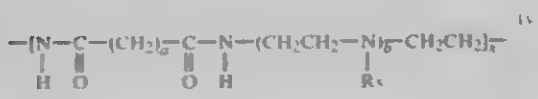


$$R_1-\overset{|}{N}-CH_2-CHOH-CHOH-CHOH-CHOH-CH_2OH$$

wherein
R_1 is alkyl having from 1 to 10 carbon atoms, or

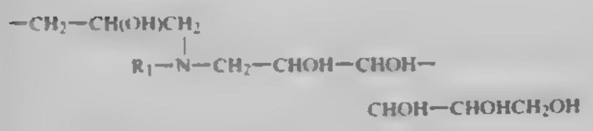
$-NH-C(CH_2OH)_3$

and
y is an integer between about 20 and 20,000,


(v)

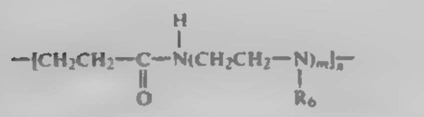
$$-[\underset{H}{\underset{|}{N}}-\underset{O}{\underset{\|}{C}}-(CH_2)_a-\underset{O}{\underset{\|}{C}}-\underset{H}{\underset{|}{N}}-(CH_2CH_2-\underset{R_5}{\underset{|}{N}})_b-CH_2CH_2]_x-$$

wherein R_5 in each unit of the polymer is independently selected from $-CH_2CH(OH)CH_2OH$; $-CH_2CH(OH)CH_2Cl$; or



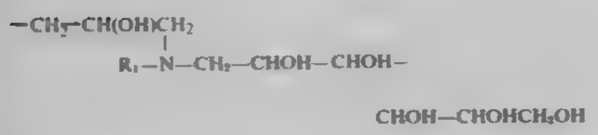
$$\begin{array}{l} -CH_2-CH(OH)CH_2 \\ \qquad\qquad\quad | \\ \qquad\quad R_1-N-CH_2-CHOH-CHOH- \\ \qquad\qquad\qquad\qquad\qquad CHOH-CHOHCH_2OH \end{array}$$

wherein R_1 is alkyl having from 1 to 10 carbon atoms, or from $-CH_2CH(OH)CH_2OH$, $-CH_2CH(OH)CH_2Cl$ or $-CH_2CH(OH)CH_2-NH-C(CH_2OH)_3$; wherein x is between about 10 to 10,000, a is 6, and b is 1 to 4;


(vi)

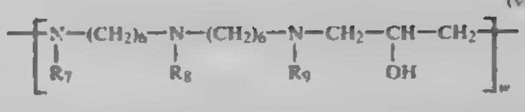
$$-[CH_2CH_2-\underset{O}{\underset{\|}{C}}-\overset{H}{\overset{|}{N}}(CH_2CH_2-\underset{R_6}{\underset{|}{N}})_m]_x-$$

R_6 in each polymer unit is independently selected from —H or



$$\begin{array}{l} -CH_2-CH(OH)CH_2 \\ \qquad\qquad\quad | \\ \qquad\quad R_1-N-CH_2-CHOH-CHOH- \\ \qquad\qquad\qquad\qquad\qquad CHOH-CHOHCH_2OH \end{array}$$

wherein
R_1 is alkyl having from 1 to 10 carbon atoms, or from —H or $-CH_2CH(OH)CH_2-NH-C(CH_2OH)_3$;
m is 1 to 4, and x is 5 to 20,000;


(vii)

$$-\left[\underset{R_7}{\underset{|}{N}}-(CH_2)_6-\underset{R_8}{\underset{|}{N}}-(CH_2)_6-\underset{R_9}{\underset{|}{N}}-CH_2-\underset{OH}{\underset{|}{CH}}-CH_2\right]_w-$$

wherein R_7, R_8, and R_9 in each polymer unit are each independently selected from R_5 as is defined hereinabove, and w is between about 10 and 10,000;

with the proviso that the overall ratio of H to substituent in R_1, —OH or —Cl to other substituent in R_2, —OH or OR'_1 to other substituent in R_3, —OH or —Cl to other substituent in R_4, $-CH_2CH(OH)CH_2OH$ or $-CH_2CH(OH)CH_2Cl$ to other substituent in R_5, H to other substituent in R_6, $-CH_2CH(OH)CH_2OH$ or $-CH_2CH(OH)CH_2Cl$ to other substituent in R_7, $-CH_2CH(OH)CH_2OH$ or $-CH_2CH(OH)CH_2Cl$ to other substituent in R_8, and $-CH_2CH(OH)CH_2OH$ or $-CH_2CH(OH)CH_2Cl$ to other substituent R_9 in each organic polymer chelant described hereinabove is between about 10/90 and 90/10 wherein the polymeric chelant has a molecular weight of between about 500 and 1,000,000 daltons;

(B) treating the aqueous solution produced in step (A) by first membrane separation means effective to remove water and other reaction products having a molecular weight of about 500 daltons from the aqueous solution and from a concentrated aqueous solution;

(C) contacting the concentrated aqueous solution produced in step (B) with a mineral acid under conditions effective to release the boron from the chelant and form a regenerated chelant;

(D) removing the released boron ion by second membrane separation means effective to separate the released boron ion and from said a concentrated aqueous solution including regenerated chelant;

(E) recycling the concentrated aqueous solution including said regenerated chelant from step (D) to the contacting zone of step (A).

4,755,299

MULTI-LAYER MEMBRANE AND THE USE THEREOF FOR THE SEPARATION OF LIQUID MIXTURES ACCORDING TO THE PERVAPORATION PROCESS

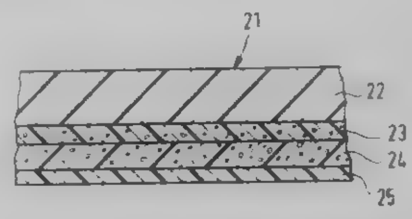
Hartmut Brüschke, Nussloch, Fed. Rep. of Germany, assignor to GFT Ingenieurbüro für Industrieanlagenbau, Fed. Rep. of Germany

Continuation of Ser. No. 499,847, Jun. 1, 1983, abandoned. This application Sep. 23, 1985, Ser. No. 778,741

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1982, 3220570

Int. Cl.⁴ B01D *13/00*

U.S. Cl. 210—640 **7 Claims**



1. A process for separating a liquid mixture into separable components comprising said mixture, comprising the steps of:

(a) delivering said liquid mixture to a first free surface of a composite membrane consisting essentially of (1) a non-porous layer useful for separating an aqueous liquid mixture comprising at least one organic liquid, said non-porous layer being comprised of a first polymer, and (2) at least one porous backing layer comprised of a second polymer, wherein said first polymer is cross-linked polyvinyl alcohol; and

(b) applying a vaccum to, or an inert gas stream over, a second free surface of said composite membrane, such that said components of said liquid mixture are separated across said composite membrane by pervaporation.

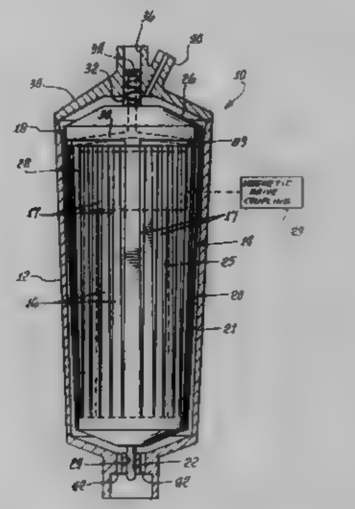
[redacted]

Richard J. Fischel, Minneapolis, Minn., and Robert C. Brumfield, Anaheim, Calif., assignors to Haemonetics Corporation, Braintree, Mass.

Filed Dec. 23, 1985, Ser. No. 812,936

Int. Cl.⁴ B01D *13/00*

U.S. Cl. 210—650 **16 Claims**



1. A method of separating fluid from a fluid suspension using a couette membrane filter having facing surfaces which define a gap therebetween, there being inlet means for introducing fluid into the gap, and outlet means for removing fluid from the gap remotely from said inlet means, comprising the steps of:

(1) locating the facing surfaces of the filter in coaxial relation:

(2) mounting a semi-porous membrane having a plurality of pores on at least one of said facing surfaces;

(3) increasing the thickness of the gap between the facing surfaces from inlet to outlet to compensate for changes in suspension viscosity;

(4) introducing the fluid suspension into the gap between the facing surfaces of the filter;

(5) rotating one surface coaxially relative to the other; and

(6) controlling the relative speed of rotation of the facing surfaces such that shear stress imparted to the fluid suspension is maintained at a constant value below a certain predetermined level whereby fluid from the suspension passes through the pores of the membrane.

4,755,301

APPARATUS AND METHOD FOR CENTRIFUGAL [redacted]

William F. Bowers, Topsfield, Mass., assignor to W. R. Grace & Co., New York, N.Y.

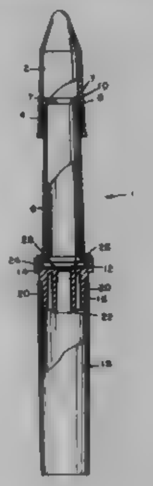
Continuation of Ser. No. 523,208, Aug. 15, 1983, Pat. No. 4,632,261. This application Aug. 12, 1986, Ser. No. 895,645

Int. Cl.⁴ B01D *13/00*

U.S. Cl. 210—650 **5 Claims**

3. A method for centrifugally recovering concentrated macromolecular liquid retentate from the retentate reservoir of an apparatus, which apparatus comprises:

- a retentate reservoir containing macromolecular liquid retentate;
- a filter means attached to the top of the retentate reservoir, said filter means comprising:
  - a semipermeable membrane; and
  - an inverted support for said membrane having one or more filtrate ducts, which, in conjunction with sealing means, holds the membrane in place;



- means for providing a liquid tight seal between the periphery of the retentate reservoir, the membrane and the membrane support;
- a retentate cup attached to the bottom of the retentate reservoir;
- means for attaching the filter means to the retentate reservoir; and
- means for attaching the retentate cup to the retentate reservoir,

comprising centrifuging the apparatus to expel a maximal amount of retentate into the retentate cup.

4,755,302

METHOD AND APPARATUS FOR MATRIX MAGNETIC [redacted]

Karl-Heinz Unkelbach, Cologne; Gerhard Schmitz, Engelskirchen; Hans-Dieter Wasmuth, Essen, and Hans Bender, Leverkusen, all of Fed. Rep. of Germany, assignors to Klockner Humboldt Deutz Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 17, 1986, Ser. No. 853,183

Claims priority, application Fed. Rep. of Germany, Apr. 17, [redacted]

Int. Cl.⁴ B01D *35/06*

U.S. Cl. 210—695 **14 Claims**

1. The method of magnetic separation wherein a fluid stream containing magnetic magnetizable and non-magnetizable particles is passed through a matrix-filled canister positioned in a magnetic coil and a canister with a matrix loaded with magnetic material is replaced with a canister having an unloaded matrix, comprising the steps:

- positioning a first conister having an axis with a matrix being loaded in a first position within a magnetic coil;
- positioning a second canister with an unloaded matrix in a second position with an axis parallel to the axis of the first canister;
- said conisters positioned equidistant from a central axis;
- introducing a magnetic material containing fluid from one end and withdrawing the fluid from the same end of the first canister;
- moving the first canister axially out of the coil out of the first position and thereafter moving the canister in a rotary

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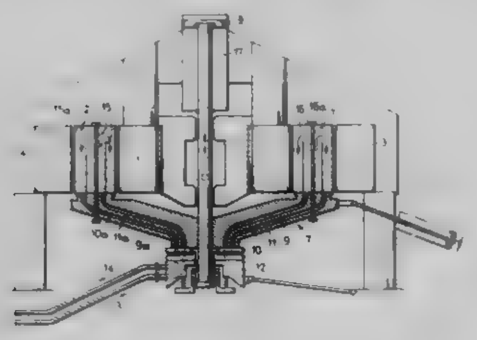
motion to a location beneath the second position and thereafter axially into the second position; and

simultaneously moving the second cansiter axially out of the second position and thereafter rotationally and then axially into the first position, said canisters moving axially parallel to said central axis and rotating about said central axis



4,755,303

METHOD OF CONVERTING BRINES TO USEFUL PRODUCTS

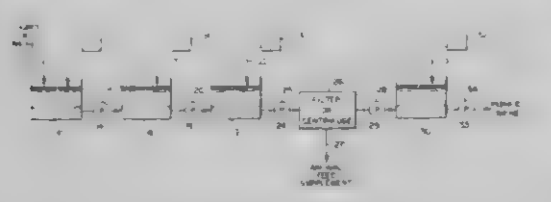
Samuel F. Sweat, Plant City, Fla., assignor to Brine Extraction Systems Technology Company, Columbus, Ohio

Filed Jan. 30, 1987, Ser. No. 9,159

The portion of the term of this patent subsequent to Jan. 6, 2004, has been disclaimed.

Int. Cl.⁴ C02F *1/52*

U.S. Cl. 210—722 9 Claims



1. A method for recovering useful products from a brine containing divalent ferrous, calcium, and magnesium ions comprising the steps of:

(a) adding a sufficient amount of an oxidizing agent to said brine to convert said ferrous ions to ferric ions;

(b) immediately thereafter adding phosphoric acid in an amount to achieve 70 percent to 100 percent of a stoichiometric ratio of phosphoric acid to the divalent calcium ions in said brine;

(c) immediately thereafter adding a sufficient amount of a material selected from the group consisting of sodium hydroxide and a mixture of sodium hydroxide and sodium carbonate to said brine to raise the pH of said brine to a pH of between 8 and 10; and

(d) immediately thereafter separating said calcium phosphate, magnesium hydroxide, and iron oxide from said brine

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4,755,304

METHOD OF PURIFYING GROUND WATER

Rolf O. Hallberg, Tyresö, and Rudolf H. Martinell, Täby, both of Sweden, assignors to Four Seasons Venture Capital AB, Sweden

Filed Jan. 6, 1986, Ser. No. 816,296

Int. Cl.⁴ C02F *3/04*

U.S. Cl. 210—747 6 Claims

1. A process for the purification of ground water in a system including a filtering medium comprising an aquifer a plurality of recharge means for injecting water into said filtering medium at a plurality of locations therein, and supply means in said filtering medium spaced from said plurality of recharge means a sufficient distance to avoid clogging of said supply means, said process comprising injecting a supply of conditioned water comprising water containing oxygen or oxygen-releasing substances into a first one of said plurality of recharge means, simultaneously withdrawing water from a second one of said plurality of recharge means adjacent to said first one of said plurality of recharge means so as to create a purification zone between said first and second ones of said plurality of recharge means, and withdrawing purified water from said supply means.

4,755,305

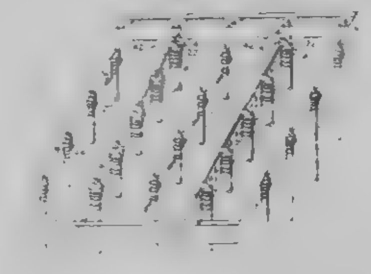
CONTINUOUS DEWATERING METHOD

Henry A. Fremont, Wyoming, and William C. Dorman, Hamilton, both of Ohio, assignors to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 416,901, Sep. 13, 1982, abandoned, which is a continuation-in-part of Ser. No. 251,219, Apr. 6, 1981, Pat. No. 4,671,874, and a continuation-in-part of Ser. No. 358,002, Mar. 15, 1982, abandoned. This application Apr. 11, 1986, Ser. No. 851,900

Int. Cl.⁴ C02F *1/46*

U.S. Cl. 210—748 11 Claims



1. A method for electrokinetically treating a member selected from the group consisting of emulsions, slurries, and solutions for separating liquid from solids and so as to minimize and make effective use of the applied power comprising the steps of:

placing cathode and anode electrodes within the liquid to be treated;

applying a time-varying, intermittent, unidirectional electrical current of 60 to 120 pulses/second to the cathode and anode electrodes to establish an electric field of 0.1 to 0.7 volts/cm at a current density of 300 to 800 microamps/cm^2 of anode surface therebetween in said group member, the electrical current having a wave form which includes a switching edge at a selected phase angle of between 0° and 180° to cause charged matter within the liquid to migrate to respectively oppositely charged electrodes; and

continuing the process to complete the electrokinetic treatment with a minimized consumption of power 0.02 to 0.041 kw hrs/gallon of liquid separated out.

4,755,306

METHOD FOR COLLECTING A HIGHLY VISCOUS, TOUGH AND TACKY MATERIAL FROM AN AREA COVERED BY SUCH MATERIAL

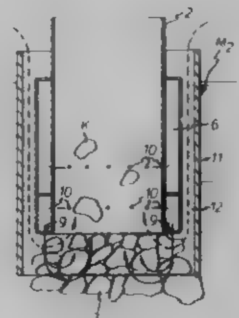
Gert A. Lövgren, Bjärred, and Karl T. Haugen, Veberöd, both of Sweden, assignors to Dinab International AB, Dalby, Sweden

Continuation of Ser. No. 607,394, May 2, 1984, abandoned. This application Nov. 26, 1986, Ser. No. 936,642

Claims priority, application Sweden, May 5, 1983, 83025676

Int. Cl.⁴ C02F *1/40*; B08B *7/00*

U.S. Cl. 210—773 9 Claims



1. A method for collecting and removing from one of a water surface area or from substantially atop an underlying earth layer surface area a material consisting of at least one of a crude oil, bituminous products or clay which covers said surface area as a tacky layer, comprising the steps of consecutively separating volumes of said tacky layer by means of a fluid curtain driven under pressure into the tacky layer and which fluid curtain has been heated to a temperature capable of lowering the high viscosity of the tacky material in said volume, said fluid curtain surrounding to substantially entirely enclose a predetermined area of said tacky layer; and applying suction to the volume of tacky material in said surrounded predtermined area thus made low-viscous, for removing said volume of tacky material from said area.

4,755,307

PROCESS FOR MAKING DRILLING FLUID ADDITIVES CONTAINING LIGNOSULFONATES

Finis S. Turner, and Lee S. Park, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 22, 1986, Ser. No. 899,509

Int. Cl.⁴ C09K *7/02*; C07G *1/00*

U.S. Cl. 252—8.514 13 Claims

1. A method for preparing a drilling fluid additive from an aqueous solution of calcium lignosulfonate, comprising the steps of:

(a) reacting with said solution a first amount of a metal sulfate selected from the group consisting of titanium sulfate, zirconium sulfate or combinations thereof said first amount being less than the stoichiometric amount relative to said calcium;

(b) precipitating a first portion of said calcium from said solution;

(c) adding an amount of said metal sulfate sufficient to react with substantially all of the remaining calcium lignosulfonate, but not greater than about a stoichiometric amount of said metal sulfate relative to said remaining calcium lignosulfonate, to precipitate a second portion of the calcium;

(d) filtering said precipitated calcium from the mixture; and

(e) adding to the filtered mixture of step (d), an additional amount of titanium sulfate.

4,755,308

HIGH TEMPERATURE SCREW LUBRICATING PASTE

[illegible] Hellmich, Munich, and Wilhelm Huber, [illegible], both of Fed. Rep. of Germany, assignors to Dow Corning GmbH, Munich, Fed. Rep. of Germany

Filed Feb. 4, 1987, Ser. No. 11,179

Claims priority, application Fed. Rep. of Germany, Feb. 10, [illegible]

Int. Cl.⁴ C10M *125/10*

U.S. Cl. 252—18 10 Claims

1. In a process of assembling and disassembling threaded connections which have applied thereto a high temperature screw lubricating paste, the improvement comprising using as said lubricating paste a homogeneous composition consisting essentially of: (A) from 30 to 75 percent by weight of a finely divided solid mixture of tin dioxide with an inorganic filler selected from mineral silicates, synthetic silicates, metal oxides or heavy metal powders, wherein the ratio of said filler to said tin dioxide is between 0:1 and 3:1 and said filler is thermally stable up to 1200° C.; and (B) from 25 to 70 percent by weight of a carrier oil selected from mineral oil, synthetic oils or mixtures of mineral oil with synthetic oil, whereby said threaded connections are easily disassembled after exposure to temperatures of up to about 1200° C.

4,755,309

COLD WORKING LUBRICANT FOR METALLIC CONDUITS

Takeshi Kobori; Shigeki Kimura, both of Yokohama; Tadashi Ito, Yono; Mitsuru Uemura, [illegible]; Shigeharu Nakamura, [illegible]; [illegible], both of Shimonoseki, and Tsuyoshi Matsumoto, deceased, late of [illegible], all of Japan [illegible] Matsumoto, executrix, [illegible] Matsumoto, heiress, [illegible] Matsumoto, Yuji Matsumoto, heirs), assignors to [illegible] Co., Ltd., Tokyo, Japan

Filed Sep. 18, 1985, Ser. No. 777,460

Claims priority, application Japan, Sep. 19, 1984, 59-196193

Int. Cl.⁴ [illegible]

U.S. Cl. 252—49.3 2 Claims

1. A cold work lubricant for metallic conduit comprising a butyl acrylate ester-methyl methacrylate ester copolymer that is 10–40 in resin acid value and −10° to 20° C. in glass transition temperature emulsified-dispersed in water and lower alcohol.

4,755,310

SILICONE GREASE COMPOSITION CONTAINING A CHLORINATED ALICYCLIC COMPOUND

Shigeru Mori, Annaka, and Masanobu Kimura, Yokohama, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed May 28, 1987, Ser. No. 55,182

Claims priority, application Japan, Jun. 2, 1986, 61-127697

Int. Cl.⁴ C10M *131/06, 103/00*

U.S. Cl. 252—49.6 4 Claims

1. A silicone grease composition which comprises:

(A) from 40 to 90 parts by weight of an organopolysiloxane fluid represented by the average unit formula

$$R_aSiO_{(4-a)/2},$$

in which R is a monovalent hydrocarbon group and the subscript a is a positive number in the range from 1.90 to 2.20;

(B) from 2 to 40 parts by weight of a thickening agent; and

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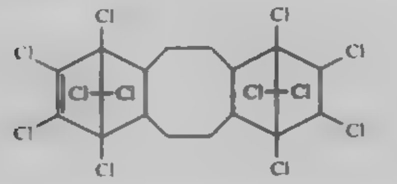
(C) from 3 to 30 parts by weight of a chlorinated alicyclic compound which is 1,2,3,4,7,8,9,10,13,13,14,-14-dodecachloro-1, 4,4a,5,6,6a,7,10,10a,11,12,12a-dodecahydro-1,4;7,10-dimethanodibenzo [a,e] cyclooctane expressed by the structural formula



total amount of the components (A), (B) and (C) being 100 parts by weight.

4,755,311

PHOSPHORUS-, SULFUR- AND BORON-CONTAINING COMPOSITIONS, AND LUBRICANT AND FUNCTIONAL FLUID COMPOSITIONS CONTAINING SAME

Louis Burjes, Wickliffe, and Stephen A. DiBiase, Euclid, both of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Filed Aug. 14, 1986, Ser. No. 896,539

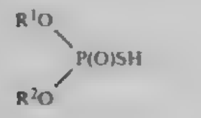
Int. Cl.⁴ C10M *137/10, 139/00*

U.S. Cl. 252—49.9 **56 Claims**

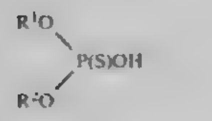
1. A borated amine salt of at least one dihydrocarbyl monothiophosphoric acid wherein the borated amine salt is derived from an amine having the general formula

$R^3R^4R^5N$

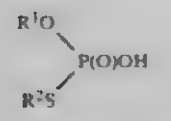
wherein each of R^3, R^4, R^5 are independently hydrogen, hydrocarbyl, aminohydrocarbyl, hydroxyhydrocarbyl or hydroxy hydrocarbyloxyhydrocarbyl groups or R^3 and R^4 are hydrocarbyl groups joined together to form a ring including the nitrogen and optionally sulfur, phosphorus, oxygen, or other nitrogen atoms, said amine containing at least one hydroxyl or N—H group, and



$$\begin{matrix} R^1O \\ & \searrow P(O)SH \\ R^2O \end{matrix} \quad (I)$$



$$\begin{matrix} R^1O \\ & \searrow P(S)OH \\ R^2O \end{matrix} \quad (II)$$



$$\begin{matrix} R^1O \\ & \searrow P(O)OH \\ R^2S \end{matrix} \quad (III)$$

or mixtures thereof wherein R^1 and R^2 are each independently hydrocarbyl groups containing from 1 to about 30 carbon atoms.

11. A lubricant or functional fluid composition selected from the group consisting of automatic transmission fluids, transaxle lubricants, gear lubricants, metal-working lubricants and hydraulic fluids comprising a major amount of at least one oil of lubricating viscosity and a minor amount of (A) the borated amine salt of claim 1.

4,755,312

CARBONATE TREATED DISPERSANTS

Robert H. Wollenberg, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 834,972, Feb. 28, 1986, Pat. No. 4,729,842, which is a division of Ser. No. 673,963, Nov. 21, 1984, Pat. No. 4,585,566. This application Sep. 19, 1986, Ser. No. 910,107

Int. Cl.⁴ C10M *133/16*

U.S. Cl. 252—51.5 A **20 Claims**

1. A product prepared by the process which comprises reacting at a temperature sufficient to cause reaction an amino-decorated hydrocarbon polymer having at least one primary or secondary amine group wtih a cyclic carbonate and wherein the molar charge of cyclic carbonate to the basic nitrogen of the amino-decorated hydrocarbon polymer is from about 0.2:1 to about 10:1.

4,755,313

INSULATING DEVICE

Georg Wahl, Eppelheim; Franz Schmaderer, Heidelberg; Cord-Henrich Dustmann, Weinheim; Harald Reiss, Heidelberg, and Botho Ziegenbein, Neckarsteinach, all of Fed. Rep. of Germany, assignors to Brown, Boveri & Cie AG, Mannheim-Käfertal, Fed. Rep. of Germany

Filed Aug. 8, 1985, Ser. No. 763,829

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1984, 3429151

Int. Cl.⁴ F16L *59/05*

U.S. Cl. 252—62 **3 Claims**

3. Insulating device for high and low temperatures comprising an enclosure containing insulating material, said insulating material is formed of a mixture consisting in part of totally reflecting non-metallic fibers made of glass, plastic or ceramic which are coated with aluminum, which individual totally reflecting non-metallic fibers are not fabricated into a coherent layer, and the totally reflecting non-metallic fibers mixed with greater than zero to 99 percent of an insulating powder consisting of SiO_2, Al_2O_3 or TiO_2 or a mixture of these materials, and non-metallic fibers made of glass, ceramic or plastic, based on the weight of the insulating material.

4,755,314

SINGLE CRYSTAL WAFER OF LITHIUM TANTALATE

Susumu Sakaguchi, Kanagawa, and Masaaki Iguchi, Gunma, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Chiyoda, Japan

Filed Dec. 3, 1985, Ser. No. 804,188

Claims priority, application Japan, Dec. 4, 1984, 59-256291

Int. Cl.⁴ C01G *35/00;* **C30B** *15/00;* **H01L** *41/22*

U.S. Cl. 252—62.9 **2 Claims**

1. An x-cut single crystal wafer of lithium tantalate which is a wafer having at least one orientation flat, the plane thereof being:

(A) in parallel with a crystallographic (018) plane or a plane which is in parallel with the x-axis and makes an angle of 15° or smaller with the (018) plane; or

(B) in parallel with a plane which is in parallel with the x-axis and perpendicular to the (018) plane or a plane which is in parallel with the x-axis and makes an angle of 15° or smaller with the plane which is in parallel with the x-axis and perpendicular to the (018) plane.

2. A method of preparing a single crystal wafer of lithium tantalate having at least one orientation flat, comprising the steps of:

(a) forming a boule of lithium tantalate crystal grown in the direction of a selected x-axis;

(b) aligning plural ferroelectric domains within said boule into a single domain;

(c) locating an 018 crystallographic plane within said boule and substantially parallel to said x-axis;

(d) forming an orientation flat on said boule, the plane thereof being:
  (i) in parallel with said 018 crystallographic plane or a plane which is parallel to the x-axis and makes an angle of 15 degrees or smaller with the 018 plane; or
  (ii) in parallel with a plane which is in parallel with the x-axis and perpendicular to the 018 plane or a plane which is in parallel with the x-axis and makes an angle of 15 degrees or smaller with the plane which is in parallel with the x-axis and perpendicular to the 018 plane; and

(e) forming x-cut wafers from said boule.

4,755,315

PREPARATION OF COBALT-CONTAINING ISOTROPIC MAGNETIC IRON OXIDES

Werner Steck, Ludwigshafen; Rainer Feser, Hemsheim; Helmut Jakusch, Frankenthal; Peter Rudolf, Neuhofen; Guenter Vaeth, Limburgerhof, and Udo Kullmann, Dirmstein, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 722,142, Apr. 11, 1985, abandoned. This application Feb. 12, 1987, Ser. No. 14,172

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1984, 3413752

Int. Cl.⁴ C01G *49/06*

U.S. Cl. 252—62.56 **1 Claim**

1. A process for the preparation of a cobalt-containing isotropic magnetic gamma-iron(III) oxide containing from 2 to 7% by weight of cobalt(II) ions and less than 2% by weight of Fe(II)ions, the percentages in each case being based on the gamma-iron(III) oxide, and having a particle length of from 0.08 to 0.30 μm, a length/width ratio of from 1.5 to 3.5 and a specific isotropic remanent magnetization after saturation of not less than 60 nTm^3/g, which process comprises:

in a first step, producing a suspension of cobalt-containing α-FeOOH seeds by partial precipitation of iron(II) hydroxide from an iron(II) sulfate solution in the presence of both cobalt(II) and phosphate ions by adding an alkali to the solution and subsequently adding an oxygen-containing gas at a temperature of from 20° to 50° C. until the pH of the suspension is less than 4, said partial precipitation being from about 20 to 50% of the iron(II) and cobalt(II) ions, the total concentration of the iron(II) and cobalt(II) ions is from about 15 to 45 g/liter, the amount of cobalt(II) ions is such that the gamma-iron(III) oxide contains about 2 to 7% by weight of cobalt and the amount of phosphate ions based on the gamma-iron(III) oxides is about from 0.3 to 1.2% by weight, and

in a second step causing the cobalt-containing α-FeOOH seeds to grow into cobalt-containing α-FeOOH end product at the said temperature and at a pH of from 4 to 5.5 by adding alkali and further oxygen-containing gas, adding alkali at the completion of this growth step to increase the pH to 8 to 12 to completely precipitate as $Co(OH)_2$ any cobalt(II) ions still present, filtering off, washing and drying the resulting product and then reducing the product to cobalt-containing magnetite by heating in a reducing atmosphere, the said magnetite then being oxidized in an oxygen-containing atmosphere at about 250° to 500° C. to give the cobalt-containing gamma-iron(III) oxide.

4,755,316

REFRIGERATION LUBRICANTS

Hillel Magid, Williamsville; Raymond Thomas, North Tonawanda; Leonard Stiel, Malverne, and John W. Pelava, Buffalo, all of N.Y., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Oct. 23, 1987, Ser. No. 111,745

Int. Cl.⁴ C09K *5/04;* **C10M** *107/34*

U.S. Cl. 252—68 **24 Claims**

1. A composition for use in compression refrigeration comprising:

(a) tetrafluoroethane; and

(b) a sufficient amount to provide lubrication of at least one polyoxyalkylene glyool which is at least difunctional with respect to the hydroxyl groups, has a molecular weight between 300 and 2000, a viscosity of about 25–150 centistokes at 37° C., a viscosity index of at least 20 and miscible in combination with (a) in the range between −40° C. and at least +20° C.

4,755,317

WORKING FLUID FOR TRACTION DRIVE

[illegible] [illegible]; Toshiyuki Tsubouchi, and Hitoshi Hata, all of Sodegaura, Japan, assignors to Idemitsu Kosan Company Limited, Tokyo, Japan

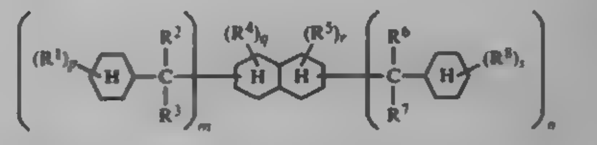
Filed Mar. 18, 1987, Ser. No. 27,180

Claims priority, application Japan, Apr. 11, 1986, 61-82363; Apr. 21, 1986, 61-90168

Int. Cl.⁴ C10M *105/04, 127/02*

U.S. Cl. 252—73 **6 Claims**

1. A working fluid for traction drive use which comprises a decahydronaphthalene compound represented by the general formula



in which R^1, R^2, R^3, R^4, R^5, R^6, R^7 and R^8 are each a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, the subscripts p, q, r and s are each a positive integer of 1, 2 or 3 and the subscripts m and n are each zero or a positive integer of 1, 2 or 3 with the proviso that m+n is 2 or 3.

4,755,318

PROCESS FOR MANUFACTURE OF DETERGENT POWDER INCORPORATING POLYHYDRIC STRUCTURING AGENTS

James F. Davies, Wirral; Peter C. Knight, Chester; Andrew W. Travill, Wirral, and Robert J. Williams, Oxford, all of England, assignors to Lever Bros. Co., New York, N.Y.

Filed Sep. 8, 1986, Ser. No. 904,743

Claims priority, application United Kingdom, Sep. 12, 1985, [illegible]

Int. Cl.⁴ C11D *9/04, 9/18, 11/02*

U.S. Cl. 252—109 **5 Claims**

1. A process for preparing a spray-dried particulate detergent composition comprising the steps of

(A) forming an aqueous crutcher slurry including
  (a) a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants, soap and mixtures thereof;
  (b) (i) 5% to 75% by weight of the spray-dried powder of a non-phosphate detergency builder material or (ii) a mixture of (i) with a phosphate detergency builder material; and
  (c) 1% to 20% by weight of the spray-dried powder of a polyhydric material selected from the group consisting

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of sucrose, glucose, fructose, maltose, cellobiose, lactose and sorbitol; and

(B) spray drying the slurry to form a detergent powder, provided that the level of the surfactant in the spray-dried detergent powder is between 2% and 30% by weight when the surfactant is an anionic surfactant, soap, or mixtures thereof, between 2 and 20% by weight when the surfactant consists of a nonionic surfactant, a mixture of between 2% and 25% of an anionic surfactant together with between 0.5% and 20% of a nonionic surfactant, or a ternary mixture of 2 to 15% by weight of the spray-dried detergent powder of anionic surfactant, from 0.5 to 7.5% by weight of the nonionic surfactant and from 1 to 15% by weight of soap.

4,755,319

PROCESS FOR THE PRODUCTION OF SOLID, POURABLE WASHING OR CLEANING AGENTS WITH A CONTENT OF A CALCIUM BINDING SILICATE

Heinz Smolka, Langenfeld Rhld., and Milan J. Schwuger, Haan Rhld, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of [illegible]

Continuation-in-part of Ser. No. 304,791, Sep. 23, 1981, abandoned, which is a continuation of Ser. No. 813,436, Jul. 7, 1977, Pat. No. 4,330,423, which is a continuation of Ser. No. 458,303, Apr. 5, 1974, abandoned. This application Oct. 29, 1982, Ser. No. 437,518

Claims priority, application Austria, Jun. 20, 1973, 5458/73; Sep. 25, 1973, 8237/73

Int. Cl.⁴ C01B *33/28;* **C02F** *1/42;* **C11D** *3/12, 11/00*

U.S. Cl. 252—174.25 **18 Claims**

1. In a process for preparing a solid, pourable, washing and cleaning multicomponent composition by mixing the components including at least one crystallized water-insoluble alkali metal aluminosilicate produced synthetically and allowing the reaction product to crystallize to a water-insoluble alkali metal aluminosilicate having a calcium binding powder when measured at 22° C. by the Calcium Binding Power Test Method set out in the specification, of at least 50 mg CaO/gm of anhydrous active substance and the formula on the anhydrous basis:

$$(M_2O)_x\,Al_2O_3.(SiO_2)_y$$

where M is an alkali metal, x is a number from 0.7 to 1.5, and y is a number from 1.3 to 4, the improvement which comprises mixing the crystallized aluminosilicate in the moist state from its production in the form of an aqueous fluid suspension or an aqueous, viscous paste, without interim drying after its production process, but after removal of at least some of the mother liquor from its production process with at least part of the other components and recovering said solid, pourable, washing and cleaning composition.

9. In a process for preparing a solid, pourable, washing and cleaning multicomponent composition by mixing the components including at least one crystallized water-insoluble alkali metal aluminosilicate produced synthetically by reacting a water-soluble alkali metal silicate with a water-soluble alkali metal aluminate in the presence of water and allowing the reaction product to crystallize to a water-insoluble alkali metal aluminosilicate having a calcium binding power when measured at 22° C. by the Calcium Binding Power Test Method set out in the specification, of at least 50 mg CaO/gm of anhydrous active substance and the formula on the anhydrous basis:

$$(M_2O)_x.Al_2O_3.(SiO_2)_y$$

where M is an alkali metal, x is a number from 0.7 to 1.5, and y is a number from 1.3 to 4, the improvement which comprises mixing the crystallized aluminosilicate in the moist state from its production in the form of an aqueous fluid suspension or an aqueous, viscous paste, without interim drying after its production process, but after removal of at least some of the mother liquor from its production process and replacement by water, with at least part of the other components and recovering said solid, pourable, washing and cleaning composition.

4,755,320

RUBBER VULCANIZATION SYSTEM

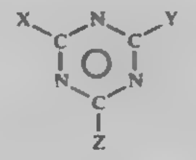
Martin P. Cohen, Akron, and Richard M. D'Sidocky, Ravenna, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 9, 1987, Ser. No. 23,328

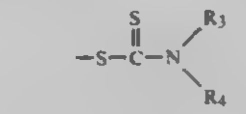
Int. Cl.⁴ C08K *5/36*

U.S. Cl. 252—182.17 **9 Claims**

1. A rubber vulcanization composition comprising (a) a morpholine polysulfide containing from 2 to 5 sulfur atoms and (b) a dithiocarbamyl triazine of the structural formula:



wherein X, Y and Z are the same or different radicals selected from the group consisting of halogen, alkoxy of 1–8 carbon atoms, the radical —S—R wherein R can be from 1–8 carbon atoms, the radical —N—R^1—R^2 wherein R^1 and R^2 can be the same or different radicals of 1 to 8 carbon atoms or R^1 and R^2 taken together complete with the nirogen atom to which they are attached can form a six membered ring which may contain oxygen as a heteroratom, and a dithiocarbamyl radical of the formula:



wherein R^3 and R^4 are the same or different radicals selected from alkyl of 1 to 8 carbon atoms or R^3 and R^4 taken together with the nirogen atom to which they are attached form a six membered ring which may contain oxygen as a heteroatom; with the proviso that at least one of X, Y or Z is always a dithiocarbamyl radical and (c) sulfur; wherein the weight percent of component (a) can range from 20 to 98%, the weight percent of component (b) can range from 2 to 40% and the weight percent of component (c) can range from 0 to 70% based on the total weight of the composition with the proviso that the weight percent of (a) is always equal to or greater than the weight percent of (b).

4,755,321

STORAGE STABLE POLYOL COMPOSITIONS

Christopher T. Moss, Columbus; Gary E. Kimes, Hilliard, and Timothy A. Tufts, Powell, all of Ohio, assignors to Ashland Oil, Inc., Russell, Ky.

Filed May 22, 1987, Ser. No. 52,935

Int. Cl.⁴ C09K *3/00;* **H05B** *33/00;* **C08G** *18/08, 18/22*

U.S. Cl. 252—182.24 **19 Claims**

1. A method for making a storage stable blend of a long chain polyol and a short chain glycol which blend phase separates under storage, which comprises:

incorporating into said blend a compatabilizing amount of a salt wherein the salt is formed from a metal having a charge density of from about 1.25 to about 1.45.

4,755,322

METHOD OF OBTAINING COMPOSITE ION EXCHANGERS

Jerzy Narbutt, Pazi Ńskiego/ Barbara Bartoś, Hanke Bosaka; Aleksander Bilewicz, Krochmalna, and Zdzislaw Szeglowski, Bronowicka, all of Poland, assignors to Instytut Chemii I Techniki Jadrowej, Warsaw, Poland

Filed Aug. 27, 1986, Ser. No. 901,270

Claims priority, application Poland, Aug. 30, 1985, 255191

Int. Cl.⁴ C09K *3/00;* **C08G** *8/18*

U.S. Cl. 252—184 **8 Claims**

1. A method of obtaining composite ion exchanger comprising a matrix of an organic carrier which is a cation exchange resin and an inorganic ion exchanger, comprising adding with mixing an active, powdered inorganic ion exchanger to the process of polycondensation of compounds selected from the group consisting of sulphonated phenols and from the group consisting of aldehydes thereby forming a suspension and dispersing the suspension into small drops which harden to form spherical beads.

4,755,323

LIQUID-CRYSTALLINE DIELECTRICS

Rudolf Eidenschink, Münster, and Georg Weber, Erzhausen, both of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

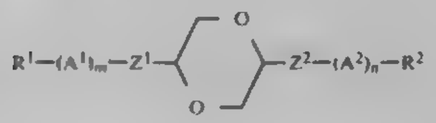
Continuation of Ser. No. 624,172, Jun. 25, 1984, abandoned. This application Mar. 13, 1986, Ser. No. 839,293

Claims priority, application Fed. Rep. of Germany, Jun. 25, [illegible]

Int. Cl.⁴ C09K *19/34;* **G02F** *1/13;* **C07D** *405/00, 409/00, 411/00*

U.S. Cl. 252—299.61 **20 Claims**

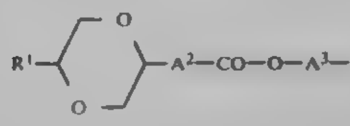
1. A liquid-crystalline dielectric useful in an electro-optical indicator element and comprising at least two liquid-crystalline compounds, wherein at least one such component is a compound of the formula



wherein

- R^1 and R^2 each independently is alkyl of 1–10 C-atoms, F, Cl, Br, CN or alkyl of 1–10 C-atoms wherein one or two non-adjacent CH_2 groups are replaced by O atoms,
- R^2 can also be H,
- A^1 and A^2 each is 1,4-phenylene, 1,4-cyclohexylene, 1,3-dioxane-2,5-diyl, 1,4-dioxane-2,5-diyl, piperidine-1,4-diyl, 1,4-bicyclo(2,2,2)-octylene or pyrimidine-2,5-diyl, unsubstituted or substituted by 1–4 F-atoms,
- Z^1 and Z^2 each independently is -CO-O-, -O-CO-, -CH_2CH_2-, -OCH_2-, -CH_2O- or a single bond,
- m and n each independently is 0, 1, 2 or 3,
- when m is zero, Z^1 is a direct bond, when n is zero, Z^2 is a direct bond
- (m+n) is at least 1 and at most 3, whereby for m=2 or 3, the groups A^1, and for n=2 or 3, the groups A^2 can, in each case, be the same or different from one another, with the proviso that Z^1 and Z^2 are not both ester groups.

20. A liquid-crystalline dielectric useful in an electro-optical indicator element and comprising at least two liquid-crystalline compounds, wherein at least one such component is a compound of the formula



wherein

- R^1 and R^2 each independently is alkyl of 1–10 C-atoms, F, Cl, Br, CN or alkyl of 1–10 C-atoms wherein one or two non-adjacent CH_2 groups are replaced by O atoms,
- R^2 can also be H,
- A^2 is 1,4-phenylene, unsubstituted or substituted by 1–4 F-atoms, and A^3 is 1,4-phenylene, 1,4-cyclohexylene, 1,3-dioxane-2,5-diyl, 1,4-dioxane-2,5-diyl, piperidine-1,4-diyl, 1,4-bicyclo(2,2,2)-octylene or pyrimidine-2,5-diyl, unsubstituted or substituted by 1–4 F-atoms.

4,755,324

THERMOLUMINESCENT MATERIAL

Joseph Lindmayer, Rockville, Md., assignor to Quantex Corporation, Rockville, Md.

Filed Nov. 15, 1985, Ser. No. 798,297

Int. Cl.⁴ C09K *11/50, 11/477*

U.S. Cl. 252—301.4 S **6 Claims**

1. A crystalline thermoluminescent material consisting essentially of:

(a) a base material selected from the group of: alkaline earth metal sufides, and selenides;

(b) a first dopant consisting of lanthanum oxide in an amount of between 1000 and 7,000 parts per million; and

(c) a second dopant consisting of europium trioxide in an amount of between 500 and 1,000 parts per million; and wherein said thermoluminescent material provides electron trapping with trap depths less that 0.150 eV and more than 0.020 eV.

4,755,325

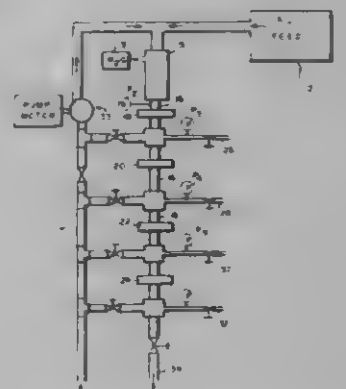
PROCESS FOR EMULSIFYING OIL AND WATER MIXTURE

Ian T. Osgerby, Bedford, Mass., assignor to Columbia Chase Corporation, Braintree, Mass.

Filed Sep. 8, 1986, Ser. No. 904,632

Int. Cl.⁴ B01F *5/06;* **B01J** *13/00*

U.S. Cl. 252—314 **7 Claims**



1. A process for emulsifying an oil and water mixture comprising from 3 to 20% by volume of water in oil, said process comprising the steps of

(1) pumping said mixture through a conduit and at least one perforated plate mounted on a conduit and having larger perforations to obtain an emulsion of said oil in said water wherein said water is predominantly dispersed in droplets of less than about 15 microns in diameter; and

(2) thereafter diminishing the number of dispersed oil droplets having diameters of less than two microns pumping said mixture through at least one additional perforated plate having smaller perforations.

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4,755,326
ELECTRON-DONOR DOPANT, METHOD OF IMPROVING CONDUCTIVITY OF POLYMERS BY DOPING THEREWITH, AND A POLYMER SO TREATED

Raimond Liepins, and Mahmoud Aldissi, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 27, 1984, Ser. No. 635,020
Int. Cl.⁴ H01B *1/06*

U.S. Cl. 252—518 **17 Claims**

1. The electrically conductive material comprising a polymer with a conjugated backbone selected from the group consisting of polyacetylene, polypyrrone, and polyphenylquinoxaline, said polymer being electron-donor doped to a controlled degree with an agent derived from an electride dopant or a dopant derived from an alkalide both of which contain a trapping agent being selected from the group consisting of: a crown ether, 1,4,7,10,13,16-hexaoxacyclooctadecane, cryptand, methyl ether cyclodextrin, spherand, methyl ether calixarene, podand, and an octopus molecule, said agent being made in the presence of lithium.

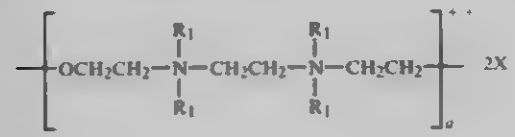
4,755,327
ISOTROPIC LAUNDRY DETERGENTS CONTAINING POLYMERIC QUATERNARY AMMONIUM SALTS

Ernest Bernarducci, Rutherford, N.J., and Kenneth A. Harrison, Monsey, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Nov. 26, 1986, Ser. No. 935,658
Int. Cl.⁴ C11D *1/62*

U.S. Cl. 252—547 **13 Claims**

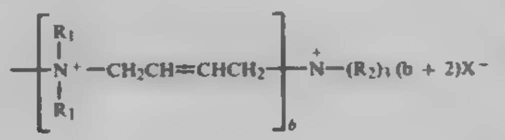
1. A liquid laundry detergent and sanitizing composition comprising: (A) from about 5.5 to about 20 weight percent of a polymeric linear quaternary ammonium salt selected from the group consisting of a compound having the formula:



$$\left[-OCH_2CH_2-\overset{R_1}{\underset{R_1}{N}}-CH_2CH_2-\overset{R_1}{\underset{R_1}{N}}-CH_2CH_2-\right]_a^{++}\ 2X \qquad \text{IA}$$

where R_1 is lower-alkyl having from one to four carbon atoms, a is an integer from 4 to 40 and X^- is halide, and a compound having the formula:

$$(R_2)_3\overset{+}{N}-CH_2CH{=}CHCH_2- \qquad \text{IB}$$

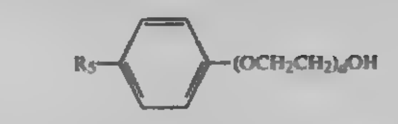


$$\left[-\overset{R_1}{\underset{R_1}{N^+}}-CH_2CH{=}CHCH_2-\right]_b-\overset{+}{N}-(R_2)_3\ (b+2)X^-$$

where R_2 is hydroxy-lower-alkyl having from two to four carbon atoms, b is an integer from 27 to 57 and R_1 and X^- have the meanings given above; (B) from about 5 to about 50 weight percent of one or more nonionic surfactants selected from the group consisting of a compound having the formula:

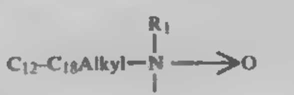
$$R_4-(OCH_2CH_2)_cOH \qquad \text{IIA}$$

where R_4 is C_{11}–C_{15} alkyl and c is an integer from 5 to 15, a compound having the formula:



IIB

where R_5 is C_8–C_9 alkyl and d is an integer from 7 to 13, a compound having the formula:



$$C_{12}\text{–}C_{18}\text{Alkyl}-\overset{R_1}{\underset{R_1}{N}}\longrightarrow O \qquad \text{IIC}$$

where R_1 has the meaning given above, and an alkyl polyglycoside; and (C) water.

4,755,328
PROCESS FOR TREATING URANIFEROUS SOLUTIONS BY THE ADDITION OF AN ALUMINUM SALT

Albert Mouton, Razes, and Georges Lyaudet, Limoges, both of France, assignors to Compagnie Generale des Matieres Nucleaires

Filed Mar. 29, 1985, Ser. No. 717,869
Claims priority, application France, Apr. 3, 1984, 84 05243
Int. Cl.⁴ G21F *9/08;* **C01G** *56/00;* **C02F** *1/42*

U.S. Cl. 252—631 **12 Claims**

1. A process for reducing the uranium content of a uraniferous solution to render the solution compatible with the natural environment into which the solution may be discharged, said solution having a pH of about 2.5 to about 6.5 and containing from about 1 to about 100 mg/l uranium, said process comprising adding to said solution an aluminum salt soluble in said solution and which, after hydrolysis in the solution, results in the formation of $Al(OH)_3$ and an increase of pH of said solution, said aluminum salt being added in an amount sufficient to raise the pH of the solution to about 5.5 to 8.5 and sufficient to effect precipitation, coagulation and adsorption of at least about 90% of the uranium originally present in the solution.

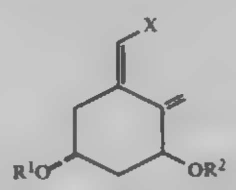
4,755,329
PROCESS AND INTERMEDIATES FOR PREPARING 1α-HYDROXYVITAMIN D COMPOUNDS

Hector F. DeLuca; Heinrich K. Schnoes, both of Madison, Wis., and Seok H. Lee, Brighton, Mass., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 10, 1985, Ser. No. 743,129
Int. Cl.⁴ C07J *9/00;* **C07C** *85/11, 35/08*

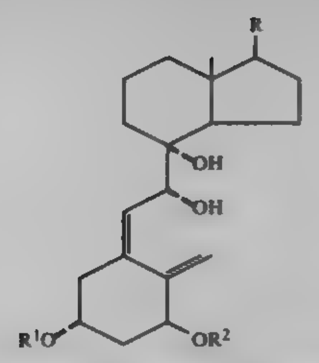
U.S. Cl. 260—397.2 **7 Claims**

1. A compound having the formula

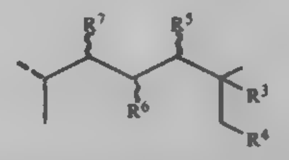


where X is a carboxyaldehyde (—CHO) group and each of R^1 and R^2 is selected from the group consisting of hydrogen and a hydroxy-protecting group.

4. Compounds having the formula:



where each of R^1 and R^2 is selected from hydrogen or a hydroxy-protecting group, and where R is a side-chain having the structure:



wherein each of R^3 and R^4 is selected from the group consisting of hydrogen, hydroxy or protected hydroxy, where R^5 is selected from the group consisting of hydrogen, alkyl, hydroxy or protected hydroxy, and where R^6 and R^7 represent, independently, hydrogen, hydroxy or protected hydroxy, or when taken together, form a carbon-carbon double bond.

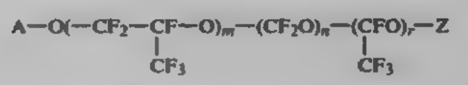
4,755,330
PROCESS FOR PREPARING NEUTRAL AND FUNCTIONAL PERFLUOROPOLYETHERS WITH CONTROLLED MOLECULAR WEIGHT

Gian T. Viola, Paullo; Gerardo Caporiccio, and Giuseppe Marchionni, both of Milan, all of Italy, assignors to Ausimont S.p.A., Milan, Italy

Filed May 22, 1985, Ser. No. 736,709
Claims priority, application Italy, May 23, 1984, 21051 A/84; May 23, 1984, 21052 A/84
Int. Cl.⁴ C07C *59/315*

U.S. Cl. 260—544 F **5 Claims**

1. A process for the scission of perfluoropolyethers selected from those having one of the following general formulae:



$$A-O(-CF_2-\underset{CF_3}{CF}-O)_m-(CF_2O)_n-(\underset{CF_3}{CFO})_r-Z \qquad (I)$$

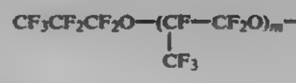
in which A is $-CF_3$; $-C_2F_5$; $-C_3F_7$ and Z is A or an acid group —COF or a derivative thereof, or the group $-CO-CF_3$;

- the monomeric units with indexes m, n and r are randomly distributed along the chain of the perfluoropolyether,
- m, n and r are integers from 0 to 200, and the value of m+n+r being always greater than zero;

$$B-O(-CF_2CF_2-O)_p-(CF_2)_q-Z \qquad (II)$$

in which

- B is $-CF_3$, C_2F_5; and
- Z is B or an acid group —COF or a derivative thereof, the monomeric units with indexes p and q are randomly distributed along the chain of the perfluoropolyether,
- p and q are integers and p/q is from 0.5 to 2, extremes included;



$$CF_3CF_2CF_2O-(\underset{CF_3}{CF}-CF_2O)_m-Y \qquad (III)$$

in which

- Y is an acyl fluoride group $-CF(CF_3)COF$ and
- m is an integer greater than zero;

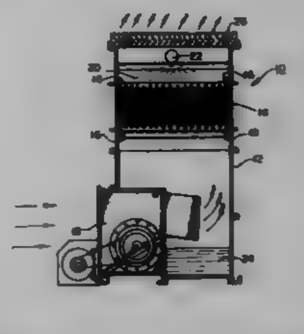
said process comprising heating the perfluoropolyether at a temperature from 150° C. to 380° C. in the presence of a catalyst comprising a fluoride and/or oxyfluoride of a metal selected from the group consisting of aluminum, titanium, vanadium, cobalt, nickel and mixtures thereof, in amounts corresponding to 0.1% to 2% by weight on the perfluoropolyether, to obtain the corresponding compounds having a lower molecular weight.

4,755,331
EVAPORATIVE HEAT EXCHANGER WITH ELLIPTICAL TUBE COIL ASSEMBLY

Richard P. Merrill, Columbia, and George R. Shriver, Sykesville, both of Md., assignors to Evapco, Inc., Baltimore, Md.

Filed Dec. 2, 1986, Ser. No. 937,165
Int. Cl.⁴ B01F *3/04*

U.S. Cl. 261—153 **14 Claims**



1. An evaporative heat exchanger comprising a conduit having a longitudinal axis, means for spraying a first external heat exchange fluid in the form of a liquid within the conduit, means for causing a second external heat exchange fluid in the form of a gas to flow through the conduit in a direction parallel to or countercurrent to the direction of the liquid external heat exchange fluid, and a coil assembly having a major plane and being mounted within the conduit such that the major plane is generally normal to the longitudinal axis of the conduit and such that the external heat exchange fluids flow externally through the coil assembly in a flow direction generally normal to the major plane of the coil assembly, the coil assembly comprising inlet and outlet manifolds and a plurality of tubes connecting the manifolds, the tubes having a plurality of segments and a plurality of bights, the bights being oriented in planes parallel to the flow direction, the segments of each tube connecting the bights of each tube and extending between the bights in a direction generally normal to the flow direction, the bights of each tube being in contact with the bights of adjacent tubes, the segments having a generally elliptical cross sectional shape such that the segments of adjacent tubes are spaced from each other within planes generally parallel to the major plane, the segments of adjacent tubes in the planes generally parallel to the major plane being staggered and spaced with respect to each other in the flow direction to form a plurality of staggered levels in which every other segment is aligned in the same level generally parallel to the major plane, wherein each bight has a transverse cross sectional dimension in a direction transverse to the flow direction and transverse to the longitudinal axis of the segment connected to the bight, the distance between the centerline of adjacent bights substantially equalling the transverse cross sectional dimension, the space between segments of

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adjacent tubes at the same level being between about 1.1 and about 1.5 times the transverse cross sectional dimension of the bight.

4,755,332

METHOD OF AND APPARATUS FOR PELLETIZING RADIOACTIVE WASTE POWDER

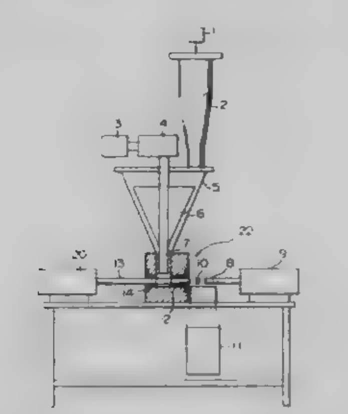
Hiroko Mizuno; Makoto Kikuchi; Shin Tamata; Satoru Ohashi, and Tadashi Sakuraoka, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 11, 1986, Ser. No. 850,667

Claims priority, application Japan, Apr. 12, 1985, 60-76485

Int. Cl.⁴ G21C *21/00*; G21F *9/36*

U.S. Cl. 264—0.5 **13 Claims**



11. A method for pelletizing a radioactive waste powder comprising:
providing a pelletizing section having a receiving cavity;
feeding radioactive waste powder into said cavity;
providing a pelletizing die with one end facing said cavity defined in said pelletizing section, and receiving said radioactive waste powder in said die through said one end from said cavity and exposing the other end to the atmosphere;
forming a through bore extending from said one end to said other end of said die;
inserting a first pelletizing rod through said receiving cavity into said through bore from said one end of said die such as to be capable of being drawn out therefrom;
inserting a second pelletizing rod into said through bore from said other end of said die such as to be capable of being drawn out therefrom;
forming an air and powder sealing connection between said second pelletizing rod and said through bore when said second pelletizing rod is within said bore;
operating said first and second pelletizing rods for keeping said second pelletizing rod in a position partially inserted into said through bore by a predetermined amount, and for simultaneously inserting said first pelletizing rod through said receiving cavity into said through bore and moving said rods relatively toward each other to a final compressed position, thereby pelletizing said powder into a pellet within said through bore;
forming a passageway extending from said through bore substantially between said rods in said final compressed position to said receiving cavity; and
guiding all of the air compressed in said through bore along the passageway during pelletizing to be discharged along with entrained powder only into said receiving cavity and preventing any of said compressed air to leak around said second pelletizing rod with entrained powder into the atmosphere during said pelletizing operation thereby increasing the pellet strength, decreasing pelletizing time and preventing atmosphere contamination with the powder.

4,755,333

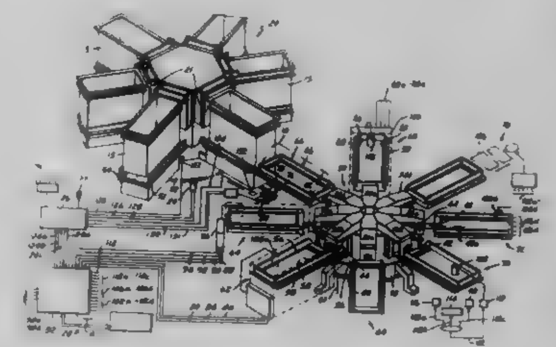
MOLD METHOD AND APPARATUS FOR PLASTIC SHELLS

John D. Gray, New Durham, N.H., assignor to Ex-Cell-O Corporation, Walled Lake, Mich.

Continuation of Ser. No. 750,640, Jul. 1, 1985, abandoned. This application Feb. 13, 1987, Ser. No. 14,754

Int. Cl.⁴ B29C *41/18*

U.S. Cl. 264—37 **[illegible] Claims**



1. Apparatus for molding a thin-walled plastic shell in a heated open-ended mold from a charge of thermoplastic powder material in open-ended powder box means comprising; carousel means having a plurality of separate powder boxes thereon; a mold station; means for off-loading a powder box from said carousel at said mold station; a drive; a heatable mold connected to said drive; means for joining said heatable mold to said off-loaded powder box in open-ended relationship without disconnecting said mold from said drive; mold indexing means including said drive for indexing heated molds with respect to said carousel; said mold indexing means including a rotatable arm, means for rotating said arm to control the attitude of said joined box and mold to distribute a charge of thermoplastic material against the casting surfaces of the mold; preheat and cure ovens; and said mold index means positioning said arm to carry said mold with respect to said preheat and cure ovens prior to and subsequent to off-loading from and return of said box to said carousel.

7. In a process for molding different colored parts on a mold which remains coupled to a drive for advancing the mold in seriatim with respect to multiple work stations including mold heating, casting and cooling stations and powder boxes coupled to the mold for providing thermoplastic material to be cast against the mold when it is heated to form a part thereon the improvement comprising:
separately reservoiring a plurality of different color thermoplastics on a single rotary platform;
selectively pre-filling a different powder box from each one of the reservoirs to define separate sources of different color thermoplastic for off-loading onto the drive;
coupling a selected one of the pre-filled powder boxes with a drive connected mold without disconnecting the mold from the drive as the mold is advanced thereby in seriatim with respect to the work stations;
maintaining the selected mold coupled to the drive and retaining it on the drive as the mold is positioned by the drive at all of the working stations without disconnecting the mold from the drive.

4,755,334

PROCESS FOR THE CONTINUOUS PRODUCTION OF ARTICLES OR COATINGS WITH CONTOURS OF COMPLICATED SHAPE

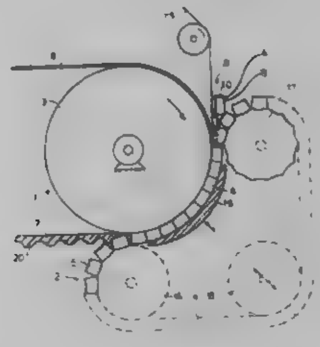
Wolfgang Grimm, Leverkusen, and James M. Barnes, Wermelskirchen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 5, 1985, Ser. No. 741,513

Claims priority, application Fed. Rep. of Germany, Jun. 8, 1984, [illegible]

Int. Cl.⁴ B29C *41/30, 41/52*

U.S. Cl. 264—40.7 **5 Claims**



1. A process for the continuous production of articles or coatings with contours wherein a liquid material is introduced at one end into the mold cavity formed between at least two travelling continuous shaping faces, said material being cured in the mold cavity and subsequently removed from the mold, characterized in that (i) the travelling faces are moved downwards at least in the region of the liquid material feed, (ii) the stream of liquid material supplied is moved to and fro transversely to the direction of advance of the faces, and (iii) the quantity of liquid material is supplied through an open inlet of the mold cavity and is controlled so as to fill the mold cavity with a coating having a non-uniform thickness said control being effected by varying the rate of advance of the travelling faces or by varying the oscillation rate of the stream while the quantity of liquid material supplied to the mold remains constant or by varying the quantity of liquid material supplied to the mold while the oscillation rate of the stream remains constant.

4,755,335

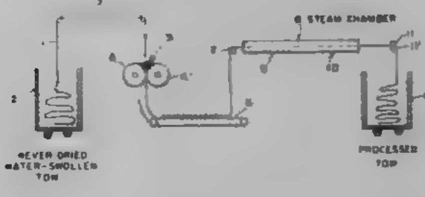
METHOD OF IMPROVING IMPREGNATION OF POLY (META-PHENYLENE ISOPHTHALAMIDE) FIBERS

Hamid M. Ghorashi, Midlothian, Va., assignor to E. I. Du Pont De Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 905,556, Sep. 12, 1986, abandoned, which is a continuation-in-part of Ser. No. 808,946, Dec. 16, 1985, abandoned. This application Sep. 26, 1986, Ser. No. 910,941

Int. Cl.⁴ D01F *6/60*; D06P *3/24, 5/02*

U.S. Cl. 264—48 **16 Claims**



1. A process for improving impregnation of poly(meta-phenylene isophthalamide) including the following steps:
extruding a solution of poly(meta-phenylene isophthalamide) and a solvent through orifices in a spinneret to form amorphous fibers which together define a fiber structure, such fibers having minute pores therein,
moving such amorphous fibers into contact with an aqueous extraction bath to remove the solvent during which such fibers become water-swollen,
contacting such water-swollen fibers with an aqueous solution containing a water-soluble material so that the individual fibers are coated with the solution and
heating the water-swollen fibers with steam at a temperature from about 110° C. to 140° C. for a time sufficient to diffuse substantially all of the water-soluble material into the pores of the fibers throughout such fiber structure.

4,755,336

PROCESS FOR MAKING POLYESTER BLEND FIBER

Martin H. G. Deeg, Maplewood, N.J., and Norman J. Bond, Matthews, N.C., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Filed May 14, 1986, Ser. No. 862,944

Int. Cl.⁴ D01F *5/12, 6/92*

U.S. Cl. 264—103 **7 Claims**

1. A process comprising melt spinning a fiber-forming composition comprising a blend of a fiber forming poly(butylene terephthalate) containing at least 85 weight percent of polymerized tetramethylene terephthalate units in the polymer chain and about 5 to 25% by weight of a fiber-forming poly(ethylene terephthalate) containing at least 85 weight percent of polymerized ethylene terephthalate units in the polymer chain, to form an as spun fiber or yarn, drawing said as spun fiber or yarn at an elevated temperature to obtain a drawn fiber or strand with a beta crystal form, and cooling said drawn fiber or yarn to below the glass transition temperature of said poly (ethylene terephthalate) without transition of the crystal structure of the polymer from the beta to an alpha crystal form to thus obtain a yarn in which said poly(butylene terephthalate) is substantially in a stable beta crystal form in the absence of any externally applied stress.

4,755,337

PROCESS FOR SURFACE TREATING A POLYESTER FILM

Teruo Takahashi; Hirofumi Yoshikawa, both of Hachioji; Sadayoshi Miura, Y[illegible] all of Japan, assignors to Teijin Limited, Tokyo, Japan

Filed Apr. 8, 1986, Ser. No. 849,522

Claims priority, application Japan, Apr. 9, 1985, 60-73444; Jul. 4, 1985, 60-145730; Jan. 14, 1986, 61-4193

Int. Cl.⁴ B29C *55/02*; B32B *27/08*

U.S. Cl. 264—134 **13 Claims**

1. A process for producing a polyester film having a primer layer, which comprises coating a crosslinkable aqueous primer coating composition comprising a polyurethane having $(0.5\text{–}10) \times 10^{-4}$ gram equivalent/gram of resin of at least one of a carboxylic acid salt group, a sulfonic acid salt group and a hemisulfate salt group and a polyepoxy compound as a crosslinking agent on at least one surface of a polyester film before its crystallization and orientation are completed, and thereafter completing the crystallization and orientation by subjecting the coated film to a drying, stretching and heating treatment.

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4,755,338

METHOD AND SLIDE-CASTING MACHINE FOR THE CASTING OF HOLLOW PRE-CAST UNITS OF CONCRETE

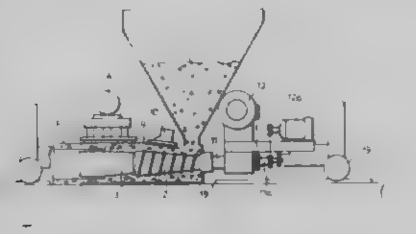
Olli E. J. Harala, Toijala, Finland, assignor to Oy Partek AB, Toijala, Finland

Continuation of Ser. No. 693,156, Jan. 22, 1985, abandoned. This application Dec. 29, 1986, Ser. No. 946,620

Claims priority, application Finland, Jan. 19, 1984, 840217

Int. Cl.⁴ B28B *1/10*

U.S. Cl. 264—209.2 **11 Claims**



1. A method for slide-casting hollow, precast units of concrete, comprising the steps of:

(a) extruding a concrete mix onto a base;

(b) forming a cavity in said concrete mix by moving at least one shaping member though the mix; and

(c) compacting the mix by displacing the shaping member with respect to a longitudinal axis of the shaping member, said shaping member including a mantle portion having a shape that is changeable by varying the distance between the longitudinal axis of the shaping member and an outer surface of the mantle portion;

wherein the shape of said mantle portion is changed by movement of a support member supporting said mantle portion, said movement being in a direction parallel to the longitudinal axis of said shaping member.

11. A slide-casting apparatus for casting hollow, pre-cast units a concrete, said apparatus comprising a deck plate having substantially opposed sidewalls, a shaping member displaceable along said deck plate for forming a cavity in a concrete mix, and a feeding member for feeding the concrete mix to said shaping member, said shaping member including a resiliently deformable mantle portion for compacting and shaping the concrete mix;

wherein the mantle portion is rotatable around a longitudinal axis of the shaping member along an outer face of a support member mounted within the mantle portion, and wherein the support member mounted within the mantle portion is displaceable in a direction substantially parallel to the longitudinal axis of the shaping member.

4,755,339

METHOD AND APPARATUS FOR MAKING MOLDED WINDOW GASKET

Albert F. Reilly, Howell, and John L. Sanok, Grosse Isle, both of Mich., assignors to Sheller-Globe Corporation, Toledo, Ohio

Division of Ser. No. 793,849, Nov. 1, 1985, which is a division of Ser. No. 505,196, Jun. 17, 1983, Pat. No. 4,648,832. This application Apr. 17, 1986, Ser. No. 853,350

Int. Cl.⁴ B29C *45/14;* **C08G** *18/08*

U.S. Cl. 264—252 **11 Claims**

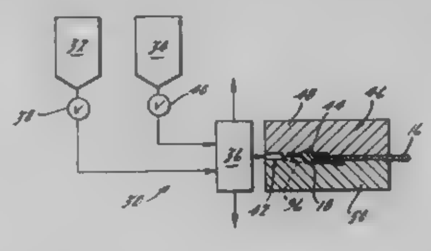
1. A method of molding a window gasket member onto an edge portion of a glass window panel in a mold cavity of a reaction injection molding system, said gasket member being composed of a multi-constituent urethane material, said method comprising:

positioning said glass window panel in a mold apparatus defining said mold cavity with said edge portion extending into said mold cavity and closing said mold apparatus;

injecting the constituents of said urethane material under pressure into a first mixing device at a predetermined flow rate;

injecting said pressurized urethane material into an aftermixer device;

separating said urethane material into at least a pair of generally serpentine flow streams in said aftermixer device and



then reuniting said flow streams in a mixing cavity in said aftermixer device; and

conveying said urethane material through a gating device from said mixing cavity into said mold cavity;

removing said glass window panel from said mold cavity with said gasket member thereon after said urethane material has at least partially cured in said mold cavity.

4,755,340

METHOD FOR PRODUCING PACKS OF BLADES USED FOR CUTTING CRYSTAL BARS INTO WAFERS

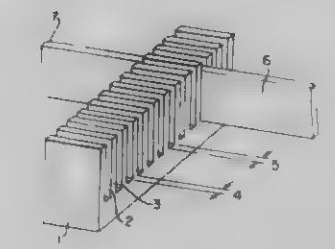
Wolfgang Ermer, Hirten, Fed. Rep. of Germany, assignor to Heliotronic Forschungs- und Entwicklungsgesellschaft fur Solarzellen GmbH, Burghausen, Fed. Rep. of Germany

Continuation of Ser. No. 777,023, Sep. 17, 1985, abandoned. This application May 28, 1987, Ser. No. 56,326

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1984, 3446564

Int. Cl.⁴ B29C *33/12, 39/10*

U.S. Cl. 264—261 **2 Claims**



1. A method of producing packs of blades used for cutting crystal bars into wafers, comprising the steps of:

(a) aligning end portions of said blades at one end of said pack of blades a predetermined distance apart by snugly and accurately fitting said blades in a plurality of recesses defined by linearly arranged, spaced apart comb-like tenons formed as a unitary structure with a jig, with the tenons each having a thickness corresponding to a desired spacing between the blades;

(b) securing said end portions together by means of a hardenable adhesive including the step of applying said adhesive to at least a section K of each blade in accordance with the formula

$$K=F/(2\cdot C\cdot B)$$

where C is the shearing strength of said hardenable adhesive, B is the width of said pack of blades and F is the total tension force on said pack of blades;

(c) removing said jig after said end portions have been locked together; and

(d) repeating steps (a) through (c) for end portions of said blades at the opposite end of said pack of blades with the same jig.

4,755,341

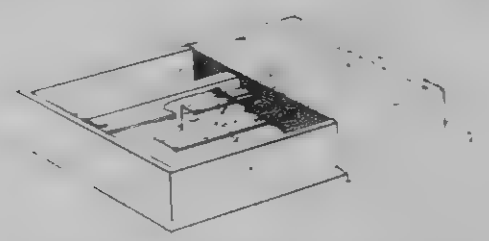
METHOD OF VACUUM BAGGING USING A SOLID FLOWABLE POLYMER

Richard T. Reavely, Madison; Peter C. Ogle, Woodbridge, both of Conn., and Robert V. Kromrey, Campbell, Calif., assignors to United Technologies Corporation, Hartford, Conn.

Filed Sep. 10, 1986, Ser. No. 907,958

Int. Cl.⁴ B29C *43/12, 43/56, 65/02*

U.S. Cl. 264—313 **1 Claim**



1. A method particularly adapted for making a complex shaped composite component comprising:

a. disposing a composite prepreg, having a predetermined height and having a substantially flat section and having at least one prepreg member extending from said flat section and being substantially perpendicular to said flat section on to a substantially flat tool;

b. disposing a layer, at least about 125% of said predetermined height, of a solid flowable particulate silicone rubber that has a flow rate of at least 0.6 gram/second through a 1.1 cm diameter pipe 7.6 cm long under applied pressure of 10.34 MPa at room temperature, in substantially complete contact with said prepreg surface not in contact with said flat tool;

c. covering said layer of solid flowable particulate silicone rubber with a bag to affect a gas tight seal with means containing said prepreg and said solid flowable particulate silicone rubber; and

d. exposing said bag to pressure whereby said solid flowable particulate silicone rubber transfers said pressure to said prepreg and exposing said prepreg while under pressure to temperatures to cure said composite prepreg to form said composite component;

wherein said composite component has reduced bridging defects.

4,755,342

INTERNAL BLOW MOLDING PROCESS

Paul J. Biermann, 14605-116 Ave., Edmonton, Alberta T5M [illegible] Canada

Continuation of Ser. No. 590,756, Mar. 19, 1984, abandoned. This application Aug. 13, 1986, Ser. No. 896,398

Claims priority, application Canada, Mar. 13, 1984, 449483

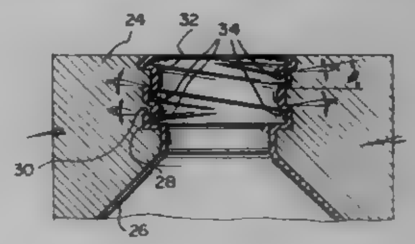
Int. Cl.⁴ B29C *49/54;* **B29D** *1/00;* **B65D** *1/02*

U.S. Cl. 264—523 **4 Claims**

1. A method of forming an internal thread on a blow-molded article, said method comprising the steps of

providing a mold having an internal surface disposed about a central axis and profiled surfaces in a part of the internal surface with one of said profiled surfaces disposed on a negative angle of 5° to 15° to a plane perpendicular to said central axis; and

blow molding a thermoplastic material within the mold to cause the material to flow inte and conform at an outer surface thereof with said profiled surfaces while forming an internal surface having a damped configuration, including an internal thread having a flat gripping surface opposite said one profiled surface sufficient for threadably



gripping and sealing with an external thread on a container.

4,755,343

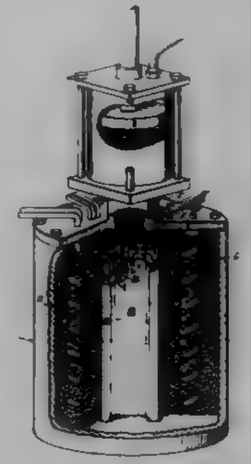
METHOD OF MOLDING USING A SOLID FLOWABLE POLYMER MEDIUM WITH METAL ADDITIVES

Robert V. Kromrey, Campbell, Calif., assignor to United Technologies Corporation, Hartford, Conn.

Filed Sep. 10, 1986, Ser. No. 907,943

Int. Cl.⁴ B29C *43/10*

U.S. Cl. 264—570 **5 Claims**



1. A method of molding an article precursor into an article at an elevated temperature comprising

(a) placing an article precursor within a pressure vessel;

(b) substantially filling the vessel with a substantially uniform mixture comprising

  (1) a solid flowable polymer medium; and

  (2) thermally conductive particulate metal having a melting point less than about said elevated temperature and substantially chemically compatible with said polymer;

(c) exposing said mixture disposed in close proximity to said article to a temperature equal to or greater than said melting point; and

(d) causing said mixture to produce a substantially uniform, predetermined medium pressure on the surface of said article precursor;

whereby the thermally conductive particulate metal transfers heat to the article precursor.

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4,755,344

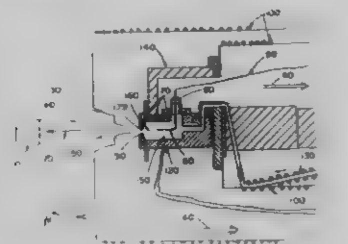
METHOD AND APPARATUS FOR THE PRODUCTION OF CLUSTER IONS

Lewis Friedman, and Robert J. Beuhler, both of Patchogue, N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 139,489, Apr. 11, 1980, abandoned. This application Dec. 22, 1982, Ser. No. 452,362

Int. Cl.⁴ G21B *1/02*

U.S. Cl. 376—108 **4 Claims**



1. An apparatus for the production of large hydrogen or deuterium cluster ions of narrow mass distribution comprising:

(a) a source of purified hydrogen gas cooled to temperatures below 30° K. and held at a predetermined pressure; and

(b) means for ionizing said gas, said ionizing means being located so as to minimize the formation of impurities through chemical reactions and so as to create such ionized gas immediately upstream of a supersonic nozzle, said nozzle being about 0.002 inches thick in its axial direction to prevent its becoming insulated through deposit of impurities or reaction products thereon and said nozzle opening into a first region that is maintained at a low pressure relative to said predetermined pressure.

4,755,345

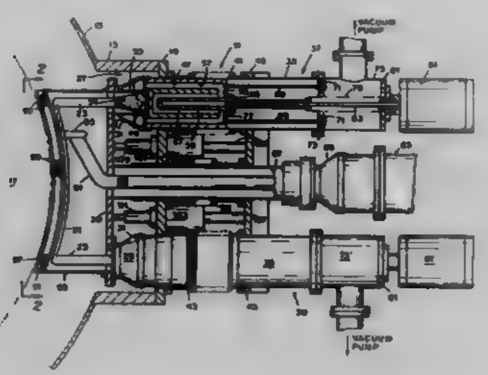
IMPEDANCE MATCHED, HIGH-POWER, RF ANTENNA FOR ION CYCLOTRON RESONANCE HEATING OF A PLASMA

Frederick W. Baity, Jr.; Daniel J. Hoffman, both of Oak Ridge, and Thomas L. Owens, Kingston, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 1, 1986, Ser. No. 891,833

Int. Cl.⁴ G21B *1/00*

U.S. Cl. 376—123 **7 Claims**



1. An antenna for radiating rf energy into a magnetically confined plasma within a vacuum vessel, comprising:

an inductive rf energy radiating element having a length substantially shorter than a half wavelength of the rf wavelength and disposed adjacent to said plasma;

first and second variable capacitors connected respectively between opposite ends of said radiating element and a common connecting point;

an input coaxial feedline having an outer conductor connected to said common connecting point of said first and second capacitors and an inner conductor connected to said radiating element at a fractional distance α of the length of said radiating element from one end of said radiating element to provide a real input impedance for said antenna which is matched to the input feedline impedance for feeding power to said antenna at a selected operating frequency in a manner to form first and second resonant loops having essentially equal currents I_1 and I_2, respectively, which flow in the same direction through said radiating element, wherein said current I_1 flows through said first capacitor and a length $1-\alpha$ of said radiating element into said inner conductor of said feedline and said current I_2 flows out of said inner conductor of said feedline through a length α of said radiating element and said second capacitor;

a drive means coupled to said first and second capacitors for varying the capacitances thereof so that the input impedance of said antenna may be varied to match the impedance of said coaxial feedline while maintaining resonance in said first and second resonant loops; and

a vacuum sealed housing means for vacuum sealed mounting of said antenna in an access port of said vacuum vessel.

4,755,346

DEVICE FOR DISPLACING AND LATCHING A CLUSTER OF CONTROL ELEMENTS IN A NUCLEAR REACTOR

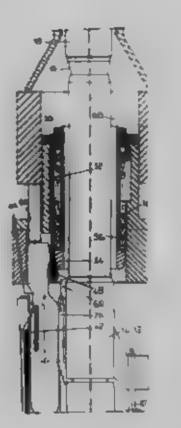
Fernand Savary, Saint Leu la Foret, France, assignor to Framatome, Courbevoie, France

Filed Dec. 26, 1985, Ser. No. 813,300

Claims priority, application France, Dec. 27, 1984, 84 19916

Int. Cl.⁴ G21C *7/12*

U.S. Cl. 376—235 **6 Claims**



1. In a nuclear reactor comprising a vessel, a removable cover for said vessel, a core including fuel nuclear assemblies in said vessel, upper internal equipments situated between said core and said cover, a plurality of first clusters of control elements, each having a top head and movable vertically into and out of said core within and along a guide tube fixed rigidly to said upper internal equipments, a device for displacing and latching one of said first clusters comprising:

(a) a vertical shaft vertically movable along its axis under the action of a fluid pressure difference across said shaft in a cylinder,

(b) means for connecting said head of said first cluster to said shaft, having first resilient finger means carried by said shaft and notch means formed in said head for receiving said finger means and for resiliently securing and retaining said head on said shaft,

(c) a high position head latching mechanism carried by the said fixed guide tube and having second resilient finger means arranged to resiliently engage cooperating means in said head for securing and retaining the head against gravity, and vertically movable bolt urged resiliently to a first position in which it positively prevents resilient deformation of said second resilient finger means and release thereof from said head, and

(d) a mechanism for moving a second cluster vertically, cooperating with said bolt for positively moving said bolt into a second position in which it releases said second resilient finger means when the second cluster is moved above the highest position assumed during normal operation thereof.

4,755,347

DRY STORAGE OF IRRADIATED NUCLEAR FUEL

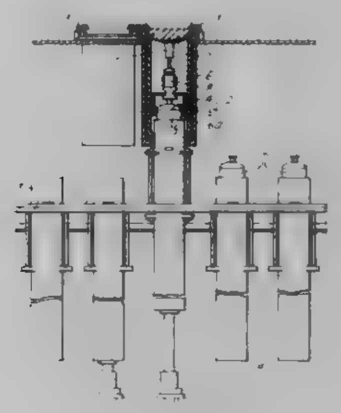
Robert D. Tolmie, Lowton, England, assignor to National Nuclear Corporation Limited, London, England

Continuation of Ser. No. 463,675, Feb. 4, 1983, abandoned. This application Jul. 25, 1986, Ser. No. 889,358

Claims priority, application United Kingdom, Feb. 18, 1982, [illegible]

Int. Cl.⁴ G21F *7/00*

U.S. Cl. 376—272 **2 Claims**



1. A construction of cells for the dry storage of irradiated nuclear reactor fuel and highly active waste, including canisters and containers for the canisters, together with respective closures for the canisters and the containers, wherein there is a posting facility for transferring radioactive material from a preparation chamber into a canister in a clean chamber without contaminating the clean chamber, the posting facility comprising means for selectively sealingly masking the outer surface of either of the closure cover of a canister or the closure cover of a container for housing the canister so as to prevent contamination of the external surface of the closure cover while so masked, means for selectively withdrawing either of the canister closure cover or the container closure cover while so sealingly masked into the preparation chamber independently of and apart from the respective cansiter or container, means for sealingly engaging the outer surface of the body of the canister to shield it from the preparation chamber, and means for sealingly engaging the outer surface of the body of a container for the canister to shield it from the preparation chamber, such that when a respective closure cover is withdrawn into the preparation chamber the interior of the respective canister or container forms an extension of the preparation chamber such that radioactive material is transferable from the preparation chamber into a canister in the clean chamber without exposing the clean chamber to contamination, and a closed canister is transferable from the preparation chamber into a container in the clean chamber without exposing the clean chamber to contamination.

4,755,348

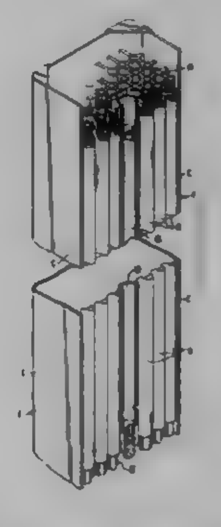
COOLED WATER ROD (LOCA CONDITIONS)

[illegible], San Jose; Gary E. Dix, Saratoga, and [illegible] G. M. Andersen, Cupertino, all of Calif., assignors to General Electric Company, San Jose, Calif.

Filed Jan. 12, 1987, Ser. No. 2,475

Int. Cl.⁴ G21C *15/18*

U.S. Cl. 376—282 **12 Claims**



11. A process for providing a radiation heat sink for fuel bundles having a large water moderator tube in the event of a loss of coolant accident said fuel bundles having an upper tie plate, a lower tie plate, a channel surrounding and connecting said tie plate, a pluraltiy of fuel rods supported between said tie plates and within said channels in side by side upstanding relation; a large water moderator tube having at least twice the diameter of said fuel rods; said process comprising the steps of:

spraying core cooling spray in an evenly divided flow over said upper tie plate;

collecting core cooling spray at an upper end of the large water moderator tube; and

distributing the core cooling spray circumferentially along the inner surfaces of the large water moderator tube in a downward flow separating the flow of the core cooling spray from the flow of steam resulting from the flashing of water to steam within the moderator tube.

4,755,349

MECHANISM FOR ANTI-SEISMIC CONNECTION BETWEEN THE PUMP BASE AND THE DOME OF A NUCLEAR POWER STATION

Jean-Marc Caniel, Cousolre, and Serge Watre, Jeumont, both of France, assignors to Jeumont-Schneider Corporation, Puteaux, France

Filed Nov. 6, 1986, Ser. No. 927,816

Claims priority, application France, Dec. 3, 1985, 85 17844

Int. Cl.⁴ G21C *9/00*

U.S. Cl. 376—285 **20 Claims**

1. In a nuclear reactor having a pump and a dome, an improved anti-seismic connection between a base of the pump and the dome, said connection being characterized in that it includes a socket closed by a fixedly attached cover and axially slidably disposed within a cylindrical portion of said dome, said pump base has an exterior flange received within said socket with relatively large radial play and relatively small axial play, radial damping means is provided between said flange and said socket to freely permit relatively slow radial

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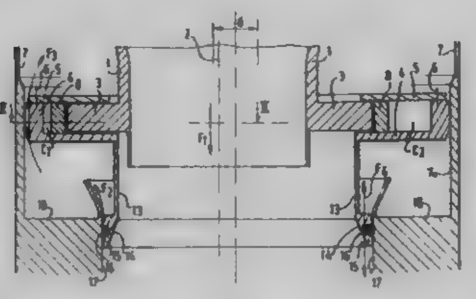
movements of said flange with respect to said socket due to effects such as differential thermal expansion between elements of the reactor but to block relatively rapid radial displacements of said flange with respect to said socket due to effects such as earthquakes, a lower end of said socket has a collar provided with a metallic journal axially slidable within a cylindrical bearing solidly fixed to an internal lateral wall of said dome, and calibrated passages are arranged at the periphery of said socket to permit controlled circulation of heat-carrying fluid of the reactor between said pump base and said dome.



[redacted]

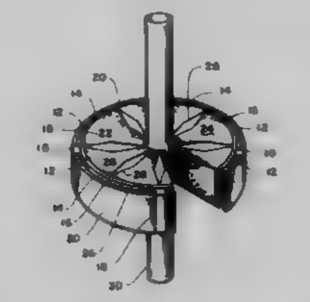
THERMIONIC REACTOR MODULE WITH THERMAL [redacted]

Elliot B. Kennel, Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 11, 1987, Ser. No. 24,447

Int. Cl.^{4} G21C *3/40*

U.S. Cl. 376—321 15 Claims



1. A thermionic energy conversion system assembly, comprising:
  (a) a source of heat;
  (b) a plurality of emitter electrodes thermally coupled to and generally enclosed by the source of heat;
  (c) a plurality of collector electrodes in a spaced relationship from and generally enclosed by the emitter electrodes; [redacted]
  (d) a heat sink generally enclosed by the collector electrodes.

[redacted]

[redacted]

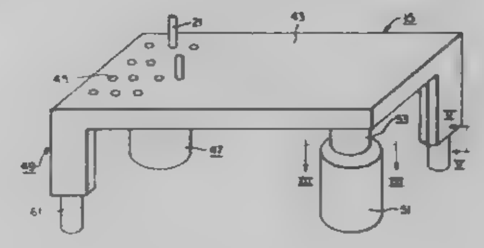
Frank J. Baloh, Dawson, and James A. Sparrow, Plum Boro, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 698,335, Feb. 5, 1985, abandoned. This application Jun. 4, 1986, Ser. No. 873,061

Int. Cl.^{4} G21C *3/00*

U.S. Cl. 376—362 12 Claims

1. In a nuclear reactor a nuclear fuel assembly, said nuclear reactor having upper and lower core-support plates, each said plate having alignment means for said fuel assembly, said reactor to conduct a coolant under high pressure and at a high velocity in the direction from said lower core-support plate to said upper core-support plate; said fuel assembly having an upper nozzle, a lower nozzle, means, connected to said nozzles, for supporting fuel rods between said nozzles, means, in said nozzles, cooperative with said alignment means, for aligning said fuel assembly moveable between said lower and upper core-support plates between a first position in which said upper nozzle is retracted from said upper core-support plate and a second position in which said upper nozzle is in engagement with said upper core-support plate, and at least one snubber interposed between said lower nozzle and said lower core-support plate, said snubber including a cylinder, a piston slidable in said cylinder and a spring connected to said piston and cylinder for exerting force between said piston and cylinder, said piston being connected to said lower nozzle, said spring having a force which is substantially smaller than the weight of said assembly allowing movement of said assembly under the force of coolant flow from said first position in the quiescent state of said coolant toward said second position in the flowing state of said coolant, said spring being set so that it exerts force on said cylinder in the direction away from said lower nozzle and towards said lower core-support plate, said spring being dimensioned so that when upward force is exerted on said fuel assembly by said coolant, causing said upper nozzle to engage said upper core-support plates, said spring exerts just sufficient downward force on said cylinder to cause said cylinder to engage said lower core plate with the relatively low force demanded by design specification requirements.



7. The method of operating a nuclear reactor having upper and lower core-support plates and having a fuel assembly, each said upper and lower core-support plates having alignment means for said fuel assembly, said reactor also having means for transmitting a coolant under high pressure in a direction from said lower to said upper core-support plate, said fuel assembly having an upper nozzle and a lower nozzle and means on said upper and lower nozzles, cooperative with said alignment means, for aligning said fuel assembly freely movable between said upper and lower core-support plates and a spring interposed between said lower nozzle and said lower core-support plate, the said method comprising: selecting said spring to exert a force substantially less than the weight of said assembly so that in the absence of flow of coolant through said reactor said fuel assembly is positioned, under the excess of the force exerted by the weight of said assembly over the force exerted by said spring, with said upper nozzle disengaged from said upper core-support plate and said lower nozzle near said lower core-support plate, transmitting coolant through said reactor, and under the force of said coolant actuating said fuel assembly to move freely upwardly under the restraint of the aligning means and the spring, so that said upper nozzle is moved into engagement with said upper core-support plate and said lower nozzle is retracted further from said lower core-support plate.

4,755,352

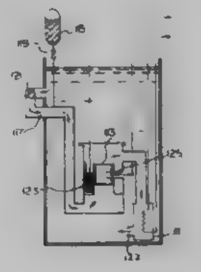
SYSTEM OF GENERATING ELECTRICITY USING A [redacted]

John S. Glen, Deep River, and Henry W. Hinds, Buchanan, both of Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Canada

Filed May 15, 1985, Ser. No. 734,144

Int. Cl.^{4} G21C *1/14*

U.S. Cl. 376—404 5 Claims



1. In a swimming pool type nuclear reactor, a thermodynamic system for converting heat produced by the reactor to a more useful form of energy, comprising:
  a pool containing light water functioning as a moderator-coolant-shielding for the reactor and being open to atmospheric pressure;
  moderator-coolant passage means having an intake end and a discharge end and defining a flow of the moderator-coolant between the ends, the both ends and a substantial part of the passage means being positioned in the pool;
  the said discharge end having pressure restriction means;
  a nuclear reactor core containing a fissionable material, the said reactor core being positioned inside the pool and located in the moderator-coolant passage means;
  pump means provided in the passage means near the said intake end, the said pump means, in cooperation with the said pressure restriction means to circulate the light water contained in the pool through the passage means under an appropriately sufficient pressure so that the light water is heated above 100° C. but the surface subcooled nucleate boiling is still maintained in the reactor core;
  primary heat exchanger means in the moderator-coolant passage means between the reactor core and the discharge end to transfer heat energy of the light water to a heat exchanger fluid contained in a secondary circuit, the said primary heat exchanger means being located in the pool;
  boiler means provided in the secondary circuit to heat an organic fluid contained in a turbine circuit;
  turbine means being provided in the turbine circuit so that the heated organic fluid drives the turbine means;
  condenser means in the turbine circuit to condense the heated organic fluid; and
  an electric generator connected to the turbine means to be driven thereby to generate electricity.

4,755,353

[redacted]

Nelson E. Kopatz, Sayre; Jack E. Vanderpool, Laceyville, both of Pa.; Philip E. Stermer, Waverly, N.Y., and Howard H. Shaw, Monroeton, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Apr. 3, 1987, Ser. No. 33,706

Int. Cl.^{4} B22F *7/00*

U.S. Cl. 419—9 6 Claims

1. A process for producing discontinuous metal foils, said process comprising:
  (a) entraining metal powder particles in a carrier gas and passing said powder particles through a high temperature zone at a temperature above the melting point of said powder particles to melt at least about 50% by weight of said powder particles; and
  (b) resolidifying the resulting high temperature treated particles by impacting said material against a substrate, said substrate being made of a material which allows said high temperature treated material to be released from said substrate without outside means, to form said foils.

[redacted]

[redacted]

Toan Trinh, Maineville, and Louis F. Wong, Mason, both of Ohio, assignors to The Procter & Gamble Company, Cincin- [redacted]

Filed Jul. 20, 1984, Ser. No. 633,161

The portion of the term of this patent subsequent to Dec. 17, [redacted]

Int. Cl.^{4} E03D *9/03;* C23G *1/02;* A01N *25/08*

U.S. Cl. 422—37 6 Claims

1. A method of automatic cleaning of a flush toilet bowl, said method comprising the steps of:
  I. initially dispensing from separate dispensing means, into the flush water in said flush toilet bowl; (A) an aqueous solution of a compound which produces hypochlorite ion in said aqueous solution; and (B) an aqueous solution of a compound which produces bromide ion in said aqueous solution thereby to form a solution in the toilet bowl at the end of each flush cycle which contains from about 30 ppm to about 100 ppm available chlorine, and from about 0.1 ppm to about 20 ppm bromide ion, and said toilet bowl solution having hypochlorite chlorite to bromide ion weight ratio of from about 1:1 to about 1000:1 said dispensing means charged with sufficient quantities of said solutions of said (A) and (B) compounds to deliver said ppm for at least about 15 to about 70 flushes;
  II. subsequently dispensing said aqueous solution which produces said hypochlorite ion to form a solution in the toilet bowl at the end of each flush cycle from about 3 ppm to up to below about 20 ppm available chlorine for at least 100 flushes,

wherein said Step I is designed to provide initial automatic cleaning of organic soils and Step II is designed to provice continuing maintenance cleaning of the toilet bowl.

[redacted]

TRACE LEVEL OXYGEN DETECTOR FOR ANAEROBIC ATMOSPHERES

Richard A. Coy, Grass Lake, and Roy A. Waycaster, Tecumseh, both of Mich., assignors to Coy Laboratory Products, Inc., Ann Arbor, Mich.

Filed Jul. 8, 1986, Ser. No. 883,268

Int. Cl.^{4} G01N *27/12*

U.S. Cl. 422—96 8 Claims

1. An anaerobic chamber for confining an anaerobic atmosphere including means for detecting the presence of oxygen above a trace level within said atmosphere comprising:
  first enclosure means for defining said anaerobic chamber and means for introducing and venting gases from said first enclosure means,

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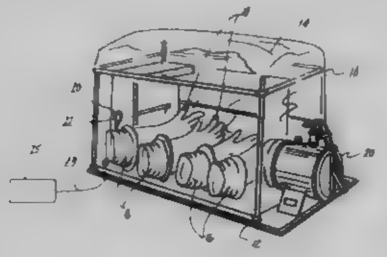
second enclosure means for defining a sampling space within said first enclosure means, said second enclosure means defining an aperture communicating with said anaerobic chamber, said second enclosure means having thermal characteristics which cause the temperature within said second enclosure means to change more slowly than that of said first enclosure means, said second enclosure means disposed within said first enclosure means such that all of said gases defining said anaerobic atmosphere do not pass through said second enclosure means while being introduced into or vented from said first enclosure means,

a membrane extending across said aperture to thereby volumetrically confine said second enclosure means, said membrane being permeable to low molecular weight gases including oxygen and hydrogen while permitting diffusion of said anaerobic atmosphere into said second enclosure means,



a catalyst disposed within said second enclosure means for promoting exothermal chemical reaction of oxygen and hydrogen passing through said membrane from said first enclosure means into said sampling space, and

temperature sensing means for sensing the temperature rise within said sampling space caused by said exothermic reaction of oxygen above a trace level, said temperature sensing means including means to compensate for ambient temperature variations.

4,755,356

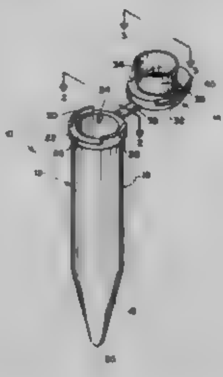
LOCKING MICROCENTRIFUGE TUBE

Paul B. Robbins, Palo Alto; Arthur J. Robbins, Mountain View, and Thomas R. Sutton, San Jose, all of Calif., assignors to Robbins Scientific Corporation, Mountain View, Calif.

Filed Jan. 23, 1986, Ser. No. 821,828

Int. Cl.⁴ G01N *21/03;* **B65D** *55/16*

U.S. Cl. 422—102 3 Claims



1. A locking microcentrifuge tube assembly comprising:

A. a hollow tubular body, tapered to a close at one end and including means defining an aperture comprising a thickened collar at the opposite end, the collar being provided with multiple axially exterior peripheral projections extending from the collar away from the body, each said projection encompassing between thirty and one hundred fifty degrees of arc;

B. a cap portion, including a lower plug portion which is flared outwardly from its attachment point to the top of the cap so that the extreme end of the plug portion has an outer diameter slightly larger than the inner diameter of the tubular body;

the plug portion being formed from a resilient material capable of non-destructive deformation so that a friction fit seal is formed when the plug portion is forcibly introduced into the tubular body;

the cap portion further including multiple depressions formed therein, each said depression being adapted to mate with a respective one of said projections of the collar to form a tight mesh therewith, the mesh occurring with a greater degree of interconnection than is present in the friction fit seal between the plug portion of the cap and the tubular body;

thereby providing a locking microcentrifuge tube with two modes of sealing, the specific mode being a function only of how firmly the plug portion is introduced into the tubular body, with either mode achievable through one-hand manipulation of the tube; and

C. a flexible hinge connecting the cap portion and the tubular body portion such that the cap portion may be readily disengaged from the tubular body portion yet not totally detached from the assembly.

4,755,357

SAMPLING DEVICE FOR A GAS ANALYZER

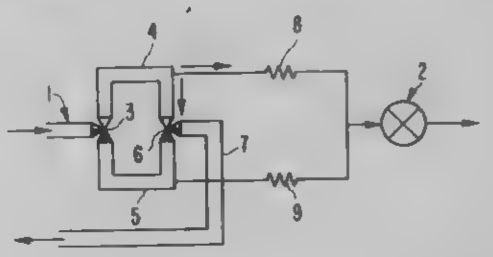
Naoki Noguchi, and Toshikazu Ohnishi, both of Minami, Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Jan. 27, 1986, Ser. No. 822,613

Claims priority, application Japan, Feb. 7, 1985, 60-16787[U]

Int. Cl.⁴ G01N *1/22, 21/76, 21/85, 27/62*

U.S. Cl. 422—103 3 Claims



1. A sampling device for use with a gas analyzer, comprising:

an inlet;

a changeover valve having an air inlet port connected to said inlet and at least a first and a second outlet port, and a valve means movable between a first position in which the inlet port is connected to said first outlet port and a second position in which said inlet port is conencted to said second outlet port;

at least a first and a second branch passage, each having an upstream end connected in parallel to said first and said second outlet ports, respectively, of said changeover valve for having gas to be analyzed directed through said first or said second branch passage from said inlet depending on whether said valve means is in said first position or said second position, respectively;

a discharge;

discharge valve means connected between downstream ends of said first and said second branch passages and said discharge for opening the downstream ends of said first and second passages into said discharge when gas to be analyzed is being directed into the first and second branch passages; and

a capillary for each of said first and second branch passages, each capillary having an upstream end connected to a corresponding branch passage and having the downstream end adapted to be connected to a detector for detecting components of the gas being analyzed, whereby a desired amount of the gas to be analyzed can be supplied through one or the other capillary and excess gas is discharged into said discharge.

4,755,358

FLUIDIZED BED APPARATUS FOR THE TREATMENT OF FLUIDIZED CARBON BLACK WITH GASES

Manfred Voll, Erlensee, and Richard Engel, Waldorf, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Division of Ser. No. 747,609, Jun. 21, 1985, Pat. No. 4,647,444. This application Jan. 14, 1986, Ser. No. 818,590

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1984, 3423580

Int. Cl.⁴ B01J *8/18;* **C09C** *1/48*

U.S. Cl. 422—106 1 Claim

1. Apparatus for the treatment of carbon black with gases in a fluidized bed, comprising a vertically oriented, cylindrically shaped fluidized bed treating vessel having an upper end and a lower end, a downwardly directed, conically shaped wall of cylindrical cross section having an upper end connected to the lower end of the cylindrical vessel and terminating in a lower end which is connected to a lower end of a centrally disposed, conically shaped upwardly directed displacement body, said conically shaped displacement body defining an opening consisting of a centrally disposed carbon black discharge line extending therethrough and having an inlet end at an apex of said displacement body, valve means connected to said centrally disposed discharge line, at least one gas injection means tangentially connected to said downwardly directed conically shaped wall at its lower end, quieting chamber means connected to the upper end of the cylindrical vessel and having a cross sectional area greater than that of the cylindrical vessel, said quieting chamber means having exiting means for the exhaust gas, carbon black feed means connected to said quieting chamber and having valve means therein to control the feeding of carbon black to the cylindrical vessel and optical sensing means located in the vessel adjacent the upper end thereof to determine the upper level of a fluidized bed maintained therein.

4,755,359

ARRANGEMENT FOR THE REMOVAL OF HYDROGEN

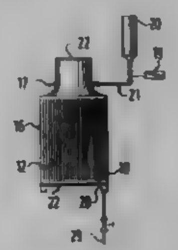
Karl-Heinz Klatt; Helmut Wenzl, both of Julich, and Amiya K. Chakraborty, Erftstadt, all of Fed. Rep. of Germany, assignors to [illegible] Gesellschaft mit [illegible] Haftung, Julich, Fed. Rep. of Germany

Filed Feb. 11, 1987, Ser. No. 13,347

Claims priority, application Fed. Rep. of Germany, Feb. 12, [illegible]

Int. Cl.⁴ G05D *16/06;* **B01D** *50/00, 53/36*

U.S. Cl. 422—113 7 Claims



1. An apparatus for the removal of hydrogen from a hydrogen-containing gas mixture comprising foil material defining foils fastened within a closable container, said foils having a material causing a removal of hydrogen, and said foils being arranged at a spacing relative to each other so as to provide interspaces between the foils which are traversable by a gas mixture; the improvement comprising: at least one supporting member for said foils being located n said container and with the foils being adherent thereto, such that the foils will extend into the surroundings about the container upon opening of the container.

4,755,360

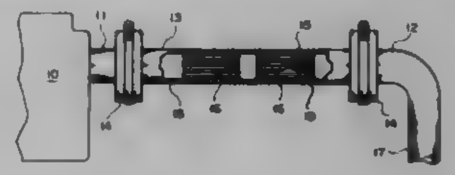
CATALYTIC CONVERTER FOR GAS TURBINE BLEED AIR EXTRACTION

Thomas A. Dickey, Westport, and George W. Kremer, Killingworth, both of Conn., assignors to Avco Corporation, Providence, R.I.

Filed Feb. 3, 1987, Ser. No. 10,206

Int. Cl.⁴ A62B *7/08*

U.S. Cl. 422—122 5 Claims



1. An assembly for removing substantially all oil contamination from bleed air flowing at a temperature of the order of 600–650 degrees Fahrenheit from a bleed air port of a gas turbine aircraft engine to a duct leading through an air conditioning component to the cabin ventilation system of an aircraft, said assembly comprising a gas turbine aircraft engine having a bleed port containing bleed air at a temperature of the order of 600–650 degrees Fahrenheit, means defining a duct, a catalytic converter interposed between and sealably coupled between said port and said duct at a location with respect to said engine such that the temperature of bleed air entering the converter is in the range of 600–650 degrees Fahrenheit, said catalytic converter further comprising a pipe wherein there is sealably mounted at least one catalytic converter matrix element through which said bleed air must flow at a mean velocity and at a temperature of the order of 600 to 650 degrees Fahrenheit, each said matrix element comprising a parallel array of a large number of slender tubules through which said bleed air flows in parallel, said tubules being coated internally

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with a catalytically active coating comprising finely-divided particles of metals chosen from group VIII of the periodic table of the elements, said tubules having an element tubule length and small individual cross-dimension and mean individual cross-section area, effective tubule length of a series-arrayed plurality of such catalytic converter matrix elements being the sum of their element tubule lengths, flow residence time being the quotient of said effective tubule length divided by said mean flow velocity, and the ratio of said mean individual cross-section area to said flow residence time being not greater than 2.52 square centimeters per second.

4,755,361

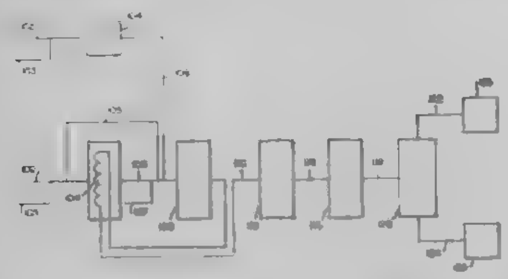
APPARATUS FOR AMMONIA SYNTHESIS GAS PRODUCTION

Andrija Fuderer, Antwerpen, Belgium, assignor to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 577,836, Feb. 7, 1984, Pat. No. 4,592,860. This application Jan. 14, 1986, Ser. No. 818,703

Int. Cl.⁴ C01C *1/00*

U.S. Cl. 422—148 **8 Claims**



1. An improved apparatus for the production of ammonia synthesis gas comprising:

(a) means for introducing a hydrocarbon feed stream

(b) hydrocarbon conversion means for converting said hydrocarbon feed stream to an effluent gas mixture containing hydrogen and carbon monoxide, said hydrocarbon conversion including a secondary reforming unit or a partial oxidation unit, and including means for providing air to said secondary reforming unit or said partial oxidation unit in excess of the stoichiometric amount of nitrogen required for said ammonia synthesis;

(c) water gas shift conversion means for converting carbon monoxide present in said effluent gas mixture to hydrogen and carbon dioxide;

(d) a pressure swing adsorption system being capable of selectively absorbing carbon dioxide, carbon monoxide, methane, nitrogen and other impurities from the thus shifted gas mixture to produce a product of hydrogen and nitrogen present in said stoichiometric amount for ammonia synthesis;

(e) conduit means for discharging from said pressure swing adsorption system a partially purified ammonia synthesis gas mixture of hydrogen and nitrogen from said system;

(f) conduit means for discharging from said pressure swing adsorption system purge gas effluent from said system.

4,755,362

SYSTEM FOR REDUCING ENERGY CONSUMPTION IMPROVING REACTORS FOR HETEROGENEOUS CATALYTIC SYNTHESIS AND RELATIVE REACTORS

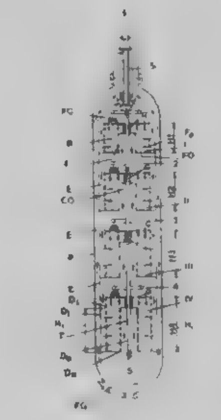
Umberto Zardi, Breganzona, Switzerland, assignor to Ammonia Casale S.A., Switzerland

Filed May 2, 1986, Ser. No. 859,044

Claims priority, application Switzerland, May 15, 1985, 2100/85; Jul. 25, 1985, 03238/85

Int. Cl.⁴ A01C *1/00*

U.S. Cl. 422—148 **10 Claims**



1. A method for retrofitting a heterogeneous synthesis reactor which comprises a cylindrical external shell, an axially positioned synthesis gas transfer pipe, an internal cylindrical cartridge, said cartridge having contained therein at least one catalyst bed having an upper transverse face, a lower end, and an internal diameter, said catalyst bed being defined by a portion of an external wall of said cartridge, a portion of an internal cylindrical wall of said axially positioned gas transfer pipe and a bottom, the upper transverse face of each said bed being an open area adapted to be fed by synthesis gas in axial flow, said method comprising:

(a) inserting a first substantially perforated cylindrical wall having a top and bottom portion into at least one of said catalyst beds inside at a position near said external cartridge wall, said first perforated wall having a diameter slightly smaller than that of the internal diameter of said cartridge;

(b) inserting a second substantially perforated wall also having a top and bottom portion and having a smaller diameter than that of said first perforated wall and a larger diameter than that of said axially positioned synthesis gas transfer pipe into each of the catalyst beds; and

(c) applying a sealed annular bottom at the lower end of each of the catalyst beds;

wherein at least one of the first and second inserted walls has a part of its top portion unperforated.

4,755,363

AUTOMATED BIOPOLYMER CRYSTAL PREPARATION APPARATUS

Shozo Fujita, Atsugi; Hachiro Yasuda, Isehara; Akio Sugama, Atsugi; Naomi Nakane, and Teruo Yagishita, both of Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 29, 1986, Ser. No. 924,330

Claims priority, application Japan, Oct. 30, 1985, 60-243149

Int. Cl.⁴ B01D *9/00*

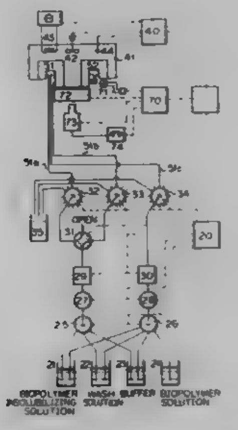
U.S. Cl. 422—245 **5 Claims**

1. An automated device for preparing biopolymer crystals alternatively employing batch-wise procedures, vapor diffusion procedures or free interface diffusion procedures, and

either zero or normal gravity conditions, said device comprising:

a reactor system including a reactor comprising a first vessel defining a first reaction space, a separate second vessel defining adjacent, separate second and third reaction spaces, and vapor conduit means interconnecting the vessels in open vapor phase communication;

a liquid supply system including, (a) separate respective reservoirs for each of (1) a biopolymer solution, (2) a biopolymer insolubilizing solution, (3) a buffer solution and (4) a wash solution, (b) conduit means for facilitating transfer of fluid from the reservoirs to said reaction spaces, said conduit means comprising separate, respective spaced conduits leading to each of said reaction spaces and (c) valve means associated with said conduit



means for selectively mixing selected solutions and selectively directing selected mixed or unmixed solutions to selected reaction spaces,

said reaction spaces of the reactor being arranged to facilitate batch-wise reaction of a mixture of fluids received in a selected space, vapor phase diffusion reaction of separate fluids received separately in said first and second spaces and free interface diffusion reaction of separate fluids received separately in said second and third spaces;

means for controlling the temperature in the reactor system; and

means for controlling the supply system and the temperature controlling means in accordance with a predetermined procedure to prepare biopolymer crystals by a desired method and under desired conditions.

4,755,364

LIQUID PHASE EPITAXY APPARATUS AND METHOD

Theodore J. La Chapelle, Jr., and Thomas P. Weismuller, both of Orange, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed May 29, 1986, Ser. No. 867,974

Int. Cl.⁴ H01L *21/208*

U.S. Cl. 422—253 **13 Claims**

1. An apparatus for performing liquid phase epitaxy, mercury containment, substrate leveling, in situ annealing/doping and gas flushing in the liquid phase epitaxy growth of HgCdTe, comprising in combination:

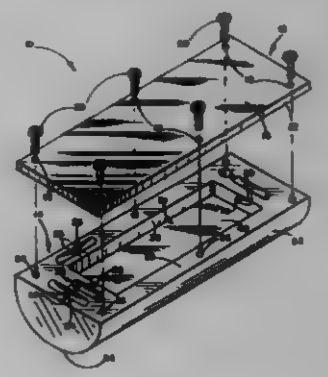
a vessel;

a LPE chamber recessed within said vessel for receiving substrate for epitaxial growth thereon;

a cover means removably attached to said vessel for providing access to the interior of said chamber and for forming a gaseous impermeable seal between said vessel and said cover means;

a means recessed within said vessel for leveling said vessel;

a means recessed within said vessel for flushing gas from said vessel, having a gaseous purge ball valve; and



a means recessed within said vessel for in situ doping-/quench annealing, having a stabilization ball valve.

4,755,365

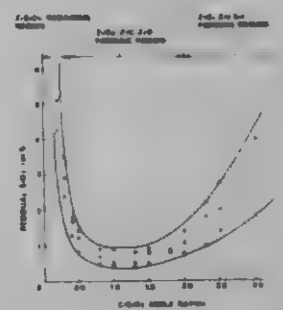
METHOD OF PRODUCING HIGH PURITY ZIRCONIA POWDER FROM ZIRCON POWDER

Toshihiko Funahashi; Ryoji Uchimura; Yukio Oguchi, and [illegible]chi Ueda, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

Continuation-in-part of Ser. No. 715,166, Mar. 22, 1985, abandoned. This application Oct. 1, 1986, Ser. No. 914,020

Int. Cl.⁴ C01G *25/02*

U.S. Cl. 423—75 **9 Claims**



1. A method of producing a zirconia powder from zirconia containing SiO_2, comprising the steps of:

preparing a raw material mixture comprising said zircon powder containing said SiO_2 and a powdery carbon-containing material such that the mole ratio of C, which is contained in said carbon-containing material and does not gasify at temperatures below 1000° C. in a nonoxidizing atmosphere, to SiO_2 contained in said zircon powder is in the range from 0.4 to 2.0; and

subjecting said raw material mixture to a desiliconizing heat treatment in a nonoxidizing atmosphere of which the presence is not higher than 0.6 atm, said desiliconizing heat treatment being a combination of a first-stage heat treatment which is performed at a temperature in the range from 1200° to 1550° C. for separating silica from said zircon powder and a second-stage heat treatment which is performed at a higher temperature in the range from above 1550° C. to 2000° C. for completely converting silica in the mixture under heat treatment into gaseous SiO and dissipating the gaseous SiO, wherein said raw material mixture is subjected to said desiliconizing heat treatment in the form of at least one lump whose bulk density is in the range from 0.7 to 2.0.

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4,755,366
PROCESS FOR CLEANING HOT WASTE GAS OCCURRING IN VARYING AMOUNTS

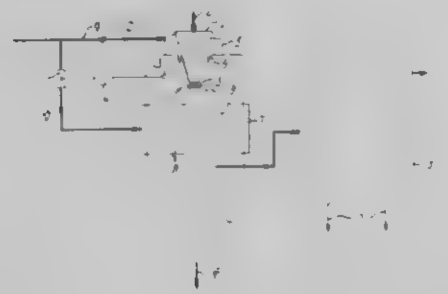
Christian Schwartzbach, Millev, Denmark, assignor to A/S Niro Atomizer, Soborg, Denmark

Filed Jan. 23, 1986, Ser. No. 821,589

Claims priority, application Denmark, Feb. 4, 1985, 489/85

Int. Cl.⁴ C01B *21/00, 7/00, 17/50*

U.S. Cl. 423—235 **8 Claims**



1. A process for cleaning a varying amount of hot waste gas comprising
- providing a source of fluctuating amounts of waste gas containing at least one of the group consisting of sulfur oxides, hydrogen chloride and nitrogen oxides as harmful components,
- blowing a stream of said waste gas through at least one gas disperser into a spray drying absorption chamber;
- atomizing an aqueous absorbent into said stream of waste gas in the drying absorption chamber thereby absorbing harmful components of the waste gas and producing a dry, powdery spent absorbent;
- when the amount of hot waste gas increases to an value in excess of the value that permits efficient functioning of the gas disperser then providing a by-pass stream of waste gas in an amount essentially equal to the excess amount of waste gas that by-passes said gas disperser;
- introducing said by-pass stream into the drying absorption chamber through apertures in the walls thereof;
- and when the amount of hot waste gas falls to a value below the amount at which the gas disperser operates efficiently then interrupting and closing off the by-pass stream thereby controlling the amount of waste gas forming said by-pass stream depending on the load on the gas disperser such that the amount of waste gas in said by-pass stream is increased when said load rises to a value higher than one permitting efficient functioning of the waste gas disperser, and the amount of waste gas in the by-pass stream is interrupted when said load falls below the one by which the functioning of the waste gas disperse is optimal.

4,755,367
PROCESS FOR THE PREPARATION OF COARSE-PARTICLE DICALCIUM PHOSPHATE DIHYDRATE

Gerold Brachtel, Mannheim; Guenter Raab, Laudenbach, and Detlev Schober, Frankenthal, all of Fed. Rep. of Germany, assignors to Benckiser-Knapsack GmbH, Ladenburg, Fed. Rep. of Germany

Filed Apr. 21, 1986, Ser. No. 853,867

Claims priority, application Fed. Rep. of Germany, May 2, 1985, 3515695

Int. Cl.⁴ C01B *15/16, 25/26*

U.S. Cl. 423—309 **13 Claims**

1. An at least semi-continuous process for the preparation of dicalcium phosphate dihydrate, comprising the steps of:
- (a) providing a dicalcium phosphate dihydrate suspension comprising phosphoric acid and having a pH between about 2.5 and about 4;
- (b) adding a high-grade aqueous phosphoric acid in about 40–85% strength concentration and an aqueous suspension of precipitated chalk in about 20–40% strength concentration to said suspension at a rate sufficient to maintain the pH at a value between about 2.5 and about 4 and to maintain a temperature between about 10° C. and about 60° C., whereby there is formed in said suspension, a dicalcium phosphate dihydrate precipitate having a substantially spherical crystal shape and a particle size in a range between about 63 and about 450 microns;
- (c) removing an amount of said suspension containing said precipitate approximately equal to the amount of said aqueous suspension of precipitated chalk and amount of said high-grade aqueous phosphoric acid added to said suspension; and
- (d) separating said precipitate from said removed amount of said suspension.

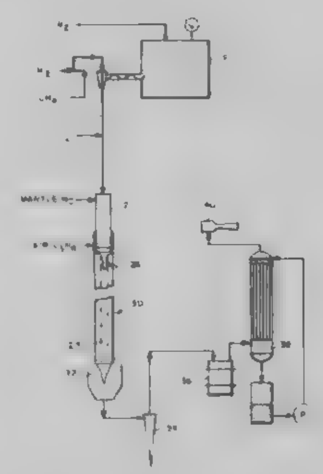
4,755,368
SILICA FILLERS FROM SILICON POWDER

Gael D. Ulrich, Durham, and Dennis W. Molesky, Newmarket, both of N.H., assignors to Ulrich Research & Consulting, Inc., Durham, N.H.

Filed Jun. 26, 1986, Ser. No. 878,590

Int. Cl.⁴ C01B *33/12*

U.S. Cl. 423—337 **9 Claims**



1. A process of making silica powder comprising the steps of feeding a fluidized silicon-powder into a combustion zone and oxidizing said powder therein to an oxide of silicon in a flame at a temperature about 3000° K. and then further oxidizing said oxide and condensing to SiO_2 powder.

4,755,369
PRODUCTION OF ULTRAFINE PARTICLES

Ozaki Yoshiharu, Musashino, Japan, assignor to Research Development Corporation of Japan, Tokyo, Japan

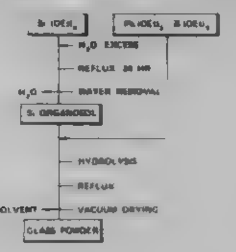
Filed Mar. 13, 1986, Ser. No. 839,495

Claims priority, application Japan, May 22, 1985, 60-109788; May 22, 1985, 60-109789

Int. Cl.⁴ B22F *9/16;* **C01B** *33/00;* **C01G** *55/00*

U.S. Cl. 423—339 **13 Claims**

1. A process for producing sinterable ultrafine particles of ruthenium oxide and metallic ruthenium comprising: mixing and reacting a ruthenium halide with an alkoxide of an alkali metal by refluxing to give a ruthenium alkoxide; hydrolyzing the ruthenium alkoxide to give precipitates of ultrafine particles; and separating said precipitates to give ultrafine particles of ruthenium oxide and metallic ruthenium.



4,755,370
PURIFICATION OF SILICON HALIDES

William D. Kray, Burnt Hills, and John S. Razzano, Cohoes, both of N.Y., assignors to General Electric Company, Waterford, N.Y.

Continuation of Ser. No. 359,437, Mar. 18, 1982, abandoned. This application Mar. 18, 1985, Ser. No. 712,913

Int. Cl.⁴ C01B *33/107*

U.S. Cl. 423—342 **14 Claims**

1. A method for purifying silicon halides comprising:
- (A) adding to a solution of silicon halide contaminated with small amounts of Lewis acid impurities a stoichiometric excess, based on the concentration of the impurites, of an organosiloxane selected from the group consisting of cyclic siloxane monomers, polydimethylsiloxane fluids and dimethyl (methyl hydrogen)siloxane copolymers;
- (B) reacting the impurites in solution with said organosiloxane at a temperature of from about 100° C. to 200° C. until substantially all the impurities form non-volatile products; and thereafter
- (C) removing purified silicon halide by distillation.

4,755,371
METHOD FOR PRODUCING CARBON BLACK

Theodore Dickerson, Bixby, Okla., assignor to Columbian Chemicals Company, Atlanta, Ga.

Filed Aug. 8, 1983, Ser. No. 521,484

Int. Cl.⁴ C01B *31/62;* **C09C** *1/48*

U.S. Cl. 423—450 **4 Claims**

1. A method for producing a relatively coarse, highly structured carbon black having a large surface area which comprises the steps of:
- (a) mixing a hydrocarbon feedstock with hot combustion gases at a high temperature in a reaction chamber wherein turbulence and stream velocity are relatively low in order to produe a preliminary coarse carbon black and effluent gases;
- (b) separating the produced preliminary coarse carbon black of step (a) from the effluent gases;
- (c) feeding the preliminary carbon black of step (a) into a reaction chamber wherein the preliminary carbon black is oxidized by hot combustion gases under controlled conditions of about 100 to 150 MCFH of air, about 0 to 4 MCFH of oxygen, about 6 to 14 MCFH of process gas, about 500 to 800 Lbs/hr of preliminary carbon black feedstock, at a blast ratio of about 7.1 to 25.1 and a total ratio of about 8.1 to 26.7, and wherein the residence time is between 1.5 and 4.5 seconds, to produce final large surface area, course, highly structured carbon black product and effluent gases; and
- (d) separating the final highly structured carbon black product of step (c) from the effluent gases.

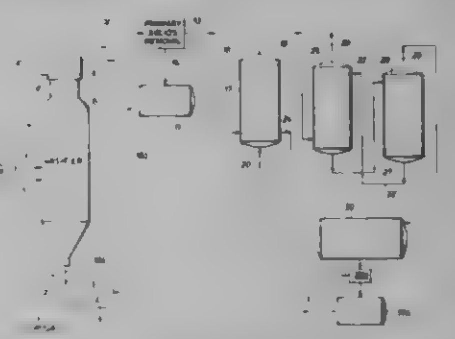
4,755,372
CATALYTIC SULFUR DEGASSING

Daniel C. Baker, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Apr. 29, 1987, Ser. No. 43,738

Int. Cl.⁴ B01J *27/04;* **C01B** *25/027*

U.S. Cl. 423—578 R **13 Claims**



1. A process for the prepatation of (1) synthesis gas reduced in solids and acidic gases and (2) elemental sulfur which comprises (a) treating coal, shale or tar sands with oxygen to produce a synthesis gas stream containing inorganic sulfide; (b) recovering slag particles from the treatment of coal in step (a) and selecting particles thereof suitable for use as a catalyst carrier; (c) treating the slag from step (b) with the synthesis gas substantially free of slag particles to deposit on the surface slag particles a catalytic amount of at lease one metal sulfide; (d) treating the synthesis gas from step (c) to remove acidic gases suitable for sulfur production; (e) converting the acid gases from step (d) to liquid sulfur; and (f) contacting the liquid sulfur with the catalytic slag particles from step (c) to reduce the hydrogen sulfide and hydrogen polysulfide content of the sulfur.

4,755,373
TITANATES IN THE FORM OF SPHERICAL PARTICLES AND PROCESS FOR PREPARING THE SAME

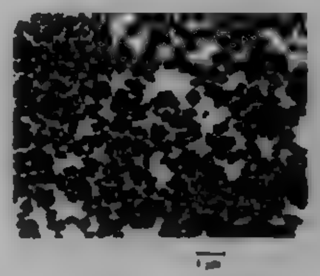
Paolo Gherardi, Novara, Italy, and Egon Matijevic, Potsdam, N.Y., assignors to Montedison S.p.A., Milan, Italy

Filed Aug. 12, 1986, Ser. No. 895,871

Claims priority, application Italy, Aug. 12, 1985, 21921 A/85

Int. Cl.⁴ C01G *23/00*

U.S. Cl. 423—598 **21 Claims**



1. A titanate of barium, strontium, or a mixture thereof, consisting essentially of solid, spherical, non-aggregated particles having a diameter of from 0.05 to 1 μm, having a narrow particle size distribution expressed by a polydispersity index, dw/dn, not in excess of 1.20, wherein dw is the weight average diameter and dn is the number average diameter, said spherical particles having a total average axial ratio, D=a/b, of at least 0.93, wherein b is the maximum diameter of each particle and a is the corresponding orthogonal diameter.

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4,755,374

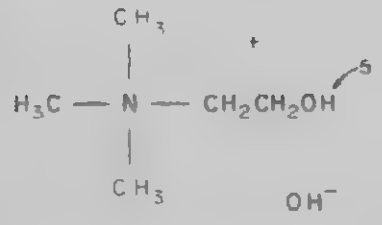
ALUMINUM HYDROXIDE PRODUCTION

Edward S. Martin, New Kensington, and Mark L. Weaver, Allison Park, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jul. 18, 1986, Ser. No. 887,000

Int. Cl.^{4} C01F *7/42*

U.S. Cl. 423—627 **10 Claims**



1. A method for the production of aluminum hydroxide, comprising reacting water in the liquid phase and aluminum of surface area of at least 20 mm^2 per gram at a pH above about 12.4 for producing a reaction mixture containing aluminum hydroxide, and collecting solid aluminum hydroxide from the reaction mixture, the reaction being carried out in the presence of choline at a concentration of about 0.05 to 2 mols per liter.

4,755,375

METHOD AND KIT FOR THE SELECTIVE LABELING OF RED BLOOD CELLS IN WHOLE BLOOD WITH [illegible]

Suresh C. Srivastava, Setauket, N.Y.; John W. Babich, Redhill, England; Rita Straub, Brookhaven, N.Y., and Powell Richards, New Bern, N.C., assignors to Associated Universities, Inc., Washington, D.C.

Continuation-in-part of Ser. No. 574,486, Jan. 27, 1984, abandoned. This application Apr. 17, 1986, Ser. No. 853,120

Int. Cl.^{4} A61K *49/02, 49/00;* **A61B** *6/00*

U.S. Cl. 424—1.1 **16 Claims**

1. A method of labeling red blood cells with ^{99m}Tc consisting essentially of:

A. supplying a sample of whole blood, including plasma and the red blood cells to be labeled, to a container having therein under sterilized conditions a lyophilized stannous ion complex with a tin content of from 5–1000 μg together with a tin complex stabilizer and incubating the mixture for a sufficient time to permit some of the stannous ion complex to pass through the membranes of the red blood cells into the cells;

b. subjecting the resulting suspension of red blood cells in plasma to the action of an oxidizing agent to convert substantially all of the stannous tin in the plasma to stannic tin;

C. incubating the avove suspension with a chelating agent for both stannic and residual stannous tin in the plasma to form tin chelates; and

D. incubating the resulting suspension with a source of ^{99m}Tc pertechnetate ion, in a form in which the ion will pass through the cell membranes of the red blood cells into the red blood cells, for a sufficient period of time to permit the stannous ions within the red blood cells to reduce the technetium to a lower valence state in which it will not pass out of the cells through the cell membrane, thereby labeling the cells with ^{99m}Tc.

4,755,376

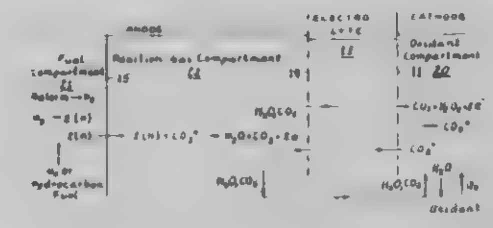
PROCESS FOR OPERATING A DUAL COMPARTMENT ANODE STRUCTURE

Leonard G. Marianowski, South Holland, Ill., assignor to Institute of Gas Technology, Chicago, Ill.

Division of Ser. No. 899,878, Aug. 25, 1986, Pat. No. 4,702,973. This application Jul. 8, 1987, Ser. No. 71,017

Int. Cl.^{4} H01M *8/04*

U.S. Cl. 429—16 **20 Claims**



1. A process for molten carbonate electrolyte fuel cell operation comprising: supplying hydrogen containing fuel to a fuel compartment, said fuel compartment separated from an anode reaction gas compartment by a hydrogen ion porous and molecular hydrogen and electrolyte non-porous metallic foil; dissociating said hydrogen to ionic hydrogen; passing said ionic hydrogen through said metallic foil to said anode reaction gas compartment which comprises a porous metallic anode structure adjacent said molten carbonate electrolyte; reacting in said porous anode structure said ionic hydrogen with carbonate ion producing water, carbon dioxide, and electrons; passing said produced water, carbon dioxide and two electrons to a porous metallic cathode structure on the opposite side of said molten carbonate electrolyte; supplying oxygen to an oxidant compartment which comprises said porous cathode structure; reacting in said porous cathode structure said carbon dioxide, oxygen and electrons to producing carbonate ions for passage to said cathode; and removing water from said oxidant compartment.

4,755,377

FOAMED AIR FRESHENER COMPOSITION

Frank J. Steer, Fort Wright, Ky., assignor to The Drackett Company, Cincinnati, Ohio

Filed Apr. 24, 1987, Ser. No. 42,122

Int. Cl.^{4} A61L *9/01;* **A61K** *7/46;* **B01J** *13/00*

U.S. Cl. 424—76.4 **21 Claims**

1. An aqueous-based gel air-treating composition comprising (a) a gel base including a gel-forming agent, water, and a volatile air-treating constituent, and (b) a gaseous component in an amount effective to provide a bulk density of said composition, measured at 20° C., of from about 0.5 to about 0.9 g./cc., the gaseous component being present within the composition as substantially homogeneously dispersed bubbles having a diameter of less than about 3,000 microns.

4,755,378

IODOPHOR-CONTAINING SUPPOSITORY

Ian R. Baxton, Cambridgeshire; Stewart T. Leslie, Cambridge; Sandra T. A. Malkowska, Cambridge, and Joanne Marchant, Cambridge, all of England, assignors to Euroceltique, S.A., Luxembourg, Luxembourg

Filed Jul. 30, 1986, Ser. No. 890,730

Claims priority, application United Kingdom, Aug. 17, 1985, 8520664

Int. Cl.^{4} A61K *31/79, 33/18*

U.S. Cl. 424—80 **13 Claims**

1. A suppository formed of at least one iodophor in an amount and with sufficient iodine concentration to provide germicidal activity, a water-soluble suppository base and at least one water-soluble sugar or sugar alcohol having a molecular weight between about 90 and 550 in amounts sufficient to provide rigidity to the suppository, and water in an amount of at least about 30% by weight, wherein the water and sugar or sugar alcohol increases the level of iodine activity.

4,755,379

POLYMERS SUBSTITUTED BY GROUPS CONFERRING ANTI-COAGULANT PROPERTIES ON THEM, PROCESS FOR THEIR PREPARATION, ARTICLES AND COMPOSITIONS MADE THEREFROM AND USES THEREOF

Marcel Josefonvicz; Jacqueline Josefonvicz, both of 65, 2ème Avenue, Lamorlaye, France 60260; Christine Fougnot, 85, Rue Marcel Grandcoing, Villetaneuse, France 93430, and Monique Mauzac, Neuilly sur Seine, France, assignors to Jacqueline Josefonvicz; Marcel Josefonvicz, both of Lamorlaye and Christine Fougnot, Villetaneuse, all of, France

Continuation of Ser. No. 169,855, Jul. 17, 1980, abandoned. This application Sep. 27, 1985, Ser. No. 781,203

Claims priority, application France, Jul. 20, 1979, 79 18780

Int. Cl.^{4} A61K *31/745, 31/715, 31/725;* **C07H** *5/06*

U.S. Cl. 424—83 **30 Claims**

1. A substituted synthetic water soluble or water insoluble polymer that has blood anticoagulating properties of natural heparin, said polymer comprising

a polymer selected from the group consisting of polystyrene, dextran, and styrene-divinylbenzene copolymer on which there is fixed groups X, V and Y, wherein:

X is H, $-SO_3R_1$ or $-R_3SO_3R_1$,

Y is H, $-SO_2R_2$ or $-R_3SO_2-R_2$

V is H, or $-CH_2-CO-NH-CHR-COOH$, with the provision that at least one of X, Y and V is other than H,

R is the side chain of an amino acid,

R_1 is a hydrogen atom or a pharmaceutically acceptable metal salt,

R_2 is a single amino acid connected to the $-SO_2$ bridge through its amine function,

R_3 is $-CH_2-CO-NH-R_4$,

R_4 is alkyl, phenyl or, benzyl and further when

X is $-SO_3R_1$, then at least one of Y or V is other than H and where V is $-CH_2-CO-NH-CHR-COOH$, at least one of X or Y is other than H; and X, Y, and V are as defined above.

15. A pharmaceutical composition having anticoagulant properties comprising a biologically acceptable carrier and a biologically effective amount of a polymer soluble in water or biological fluids defined in claim 1.

4,755,380

PEPTIDE FROM AMYLOID A AND ANTISERUM THEREFOR

Anders O. Grubb; Lennart W. Ljunggren, both of Lund, and Helene K. Hansson, Malmo, all of Sweden, assignors to Gambro Lundia AB, Sweden

Filed Feb. 6, 1986, Ser. No. 826,551

Claims priority, application Sweden, Feb. 15, 1985, 8500712

Int. Cl.^{4} A61K *39/395;* **C07K** *7/06*

U.S. Cl. 424—85 **2 Claims**

1. A synthetic amyloid A peptide consisting of the amino acid sequence serine, aspartic acid, alanine, arginine, glutamic acid, asparagine, isoleucine, glutamine, and arginine.

4,755,381

KLEBSIELLA CAPSULAR POLYSACCHARIDE VACCINE

Stanley J. Cryz, Bolligen, Switzerland, assignor to Swiss Serum and Vaccine Institute Berne, Berne, Switzerland

Filed Mar. 27, 1986, Ser. No. 844,973

Int. Cl.^{4} C08B *37/00;* **A61K** *31/715, 39/108*

U.S. Cl. 424—92 **31 Claims**

1. A method of producing a Klebsiella vaccine comprising the steps of:

preparing an essentially pure capsular polysaccharide mixture from Klebsiella bacteria;

treating said capsular polysaccharides with a deacetylating agent; and

recovering a nonpyrogenic immunogenic vaccine consisting of said capsular polysaccharides.

4,755,382

IMMUNOSTIMULATING METHOD

Dennis K. Flaherty, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Jun. 13, 1985, Ser. No. 744,467

Int. Cl.^{4} A61K [illegible]

U.S. Cl. 424—92 **2 Claims**

1. The method of stimulating the immune system of a warm-blooded animal with a bacterial endotoxin of reduced toxicity to produce an increased level of antibodies selected from the group consisting of IgG, IgA and IgE which comprises administering to said warm-blooded animal an effective amount of *Cytophaga allerginae* lipopolysaccharide endotoxin with a pharmaceutically acceptable carrier, said reduced toxicity being determined by comparison with the toxicity produced by a *Salmonella typhosa* endotoxin control and said increased level of antibodies being determined by comparison with the antibody level produced by the stimulating effect of an *E. coli* endotoxin or pokeweed mitogen control on peripheral blood lymphocytes.

4,755,383

PHARMACEUTICAL COMPOSITIONS SUITABLE FOR INTESTINAL ADMINISTRATION

Setsuro Fujii, Toyonaka; Touru Yokoyama, Tokyo; Kouji Ikegaya, Higashi-Murayama; Nobuo Yokoo, Sayama, and [illegible], Sayama, all of Japan, assignors to Kowa Co., Ltd., Nagoya, Japan

Division of Ser. No. 625,231, Jun. 27, 1984, Pat. No. 4,639,435. This application Jun. 30, 1986, Ser. No. 879,946

Claims priority, application Japan, Jun. 29, 1983, 58-116089

Int. Cl.^{4} A61K *37/54, 37/55, 31/495*

U.S. Cl. 424—94.63 **7 Claims**

1. A pharmaceutical composition suitable for intestinal absorption, which comprises (i) at least one enzyme selected from the group consisting of serratiopeptidase, seaprose, elastase, fusarium protease, sfericase and urokinase, and (ii) 1-isopropyl-4-[4-(1,2,3,4-tetrahydronaphthoyloxy)benzoyl]piperazine methane sulfonate.

4,755,384

EXTERNALLY APPLIED ANTISPASMATIC PRODUCTS

Otto Mallasz, Budapest, Hungary, assignor to Központi Valto- es Hitelbank RT, Innovacios Alap, Budapest, Hungary

Filed Mar. 15, 1984, Ser. No. 589,894

Claims priority, application Hungary, Jul. 16, 1982, 2312/82

Int. Cl.^{4} A61K *33/00;* **A61L** *15/03;* **C09K** *5/00*

U.S. Cl. 424—131 **29 Claims**

1. A method for providing pharmaceutical skin contacting products suitable for originating weak currents between active ingredient and perspiration of the skin comprising

preparing a carrier for supporting material containing an active metal ingredient;

disposing a material containing an active metal ingredient at the carrier; and

furnishing an attachment mechanism for bringing the material containing an active metal ingredient into close contact with the skin of the human body.

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4,755,385
ORAL PHARMACEUTICAL PREPARATIONS CONTAINING 9-DEOXO-11-DEOXY-9,11-[IMINO[2-(2-METHOXYETHOXY)-ETHYLIDENE]-OXY]-(9S)-ERYTHROMYCIN

Alain Etienne, St. Médard en Jalles, France; Peter Gruber, and Ulrich Busch, both of Biberach, Fed. Rep. of Germany, assignors to Dr. Karl Thomae, GmbH, Biberach, Fed. Rep. of Germany

Filed Jul. 8, 1986, Ser. No. 882,999

Claims priority, application Fed. Rep. of Germany, Jul. 10, [illegible]

Int. Cl.^{4} A61K *9/28, 9/22, 9/26*

U.S. Cl. 424—154 **7 Claims**

1. A solid pharmaceutical preparation for oral administration comprising 9-deoxo-11-deoxy-9,11-[imino[2-(2-methoxyethoxy)-ethylidene]-oxy]-(9S)-erythromycin intimately mixed with a basic excipient in a ratio of 1 mol of 9-deoxo-11-deoxy-9,11-[imino[2-(2-methoxyethoxy)-ethylidene]-oxy]-(9S)-erythromycin to at least 2 gram-equivalents of basic excipient and an effective amount of a disintegrant, to insure disintegration, fast resorption and action, and coated with a gastric juice-resistant lacquer which releases the 9-deoxo-11-deoxy-9,11-[imino[2-(2-methoxyethoxy)-ethylidene]-oxy]-(9S)-erythromycin for resorption in the uppermost sections of the intestines, where blood levels are achieved, other than the colon, in a pH range between 5.5 and 6.8.

4,755,386
BUCCAL FORMULATION

Chiin H. Hsiao, Cooper City, and Janice L. Cacace, Hollywood, both of Fla., assignors to Schering Corporation, Kenilworth, N.J.

Filed Jan. 22, 1986, Ser. No. 821,358

Int. Cl.^{4} A61K *9/20*

U.S. Cl. 424—435 **15 Claims**

1. A buccal composition for administration of an active ingredient comprising;

(a) about 1 to about 20% by weight of a soluble, pharmaceutically acceptable polymeric adhesive;
(b) about 1 to about 10% by weight of a pharmaceutically acceptable table disintegrant;
(c) a soluble, directly compressible table excipient; and
(d) a therapeutically useful amount of active ingredient.

4,755,387
THERAPEUTIC PARTICLES

Ghebre E. Tzeghai, Cincinnati, and Paul D. Leis, Jr., Hamilton, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 21, 1985, Ser. No. 714,606

Int. Cl.^{4} A61K *9/42, 9/16*

U.S. Cl. 424—490 **16 Claims**

1. Therapeutic active particles comprising a therapeutic active having a lipid coating of a mixture of:

(a) a lipid selected from the group consisting of glyceryl tristearate, glyceryl tripalmitate, monopalmityl distearyl triglyceride, dipalmityl monostearyl triglyceride and mixtures thereof;
(b) a lipid selected from the group consisting of sorbitan tristearate, hexaglycerol hexapalmitate, hexaglycerol hexastearate, decaglycerol decapalmitate, decaglycerol decastearate and mixtures thereof,

wherein the lipid coating comprises from about 3% to about 45% of the coated particle and the ratio of a:b is from about 1:9 to about 1:1.

4,755,388
LIPOSOME-ENCAPSULATED 5-FLUOROPYRIMIDINES AND METHODS FOR THEIR USE

Timothy D. Heath, Madison, Wis.; Walter H. Stern, San Mateo, and Demetrios Papahadjopoulos, San Francisco, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Continuation-in-part of Ser. No. 670,656, Nov. 9, 1984, which is a continuation of Ser. No. 370,421, Apr. 21, 1982, abandoned. This application May 30, 1986, Ser. No. 869,108

Int. Cl.^{4} A61K *9/42*

U.S. Cl. 424—450 **17 Claims**

1. A composition comprising a liposome-encapsulated antiproliferative drug, said drug being a low molecular weight polar carboxylate organic compound having a pKa in the range of about 4 to 6, and said liposome comprising phosphatidylglycerol and cholesterol in a mole ratio of about 55–75:45–25.

4,755,389
CHEWABLE CAPSULES

Brian E. Jones, Basingstoke; Paula M. Knight, Wolverhampton, and Mark A. Walker, Basingstoke, all of England, assignors to Lilly Industries Limited, London, England

Filed Sep. 10, 1986, Ser. No. 905,905

Claims priority, application United Kingdom, Sep. 11, 1985, 8522453

Int. Cl.^{4} A61K *9/52, 7/16;* **A23G** *3/30*

U.S. Cl. 424—456 **14 Claims**

1. A hard gelatin capsule containing a chewable composition which comprises (a) a semi-solid composition comprising an ingredient for buccal absorption or having buccal activity in association with a non-toxic carrier and (b) a masticatory enhancing agent, said chewable composition being liquid at a temperature below 100° C.

4,755,390
PROCESS FOR THE PRODUCTION OF A FLAVORED CEREAL PRODUCT

Thomas P. Calandro, Paterson; W. Richard DeLauder, Randolph, and Marsha K. Verrico, Fair Lawn, all of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed May 21, 1985, Ser. No. 736,332

Int. Cl.^{4} A23P *1/08*

U.S. Cl. 426—293 **14 Claims**

1. A process for flavoring a cereal product, which process comprises:

applying a sugar solution having a sugar concentration of from about 60 to about 85 percent by weight to the surface of the cereal product;

while the cereal product is still wet with the sugar solution, contacting the cereal product with a particulate flavoring composition soluble in milk, the flavoring composition comprising a flavorant dispersed in a sugar matrix, the particle size of the flavoring composition being sufficiently large to prevent substantial melting during the subsequent drying step but sufficiently small to permit the particles of the flavoring composition to dissolve readily in milk, thereby causing particles of the flavoring composition to adhere to the wet surface of the cereal product; and

thereafter drying the cereal product at a temperature not exceeding about 130° C. without substantial melting of the particles of the flavoring composition thereon for a time sufficient to cause the particles of the flavoring composition to become attached, by means of the dried sugar solution, to the surface of the cereal product without fusing the particles to one another, so that, upon immersion of the cereal product in milk, the particles of the flavoring composition will at least partially dissolve in, and release flavor into the milk.

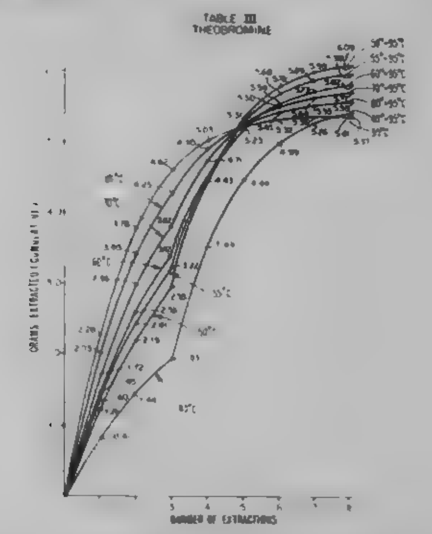
4,755,391
REMOVAL OF METHYLXANTHINES FROM CACAO MATERIALS

Giovanni L. Bigalli, and Robert D. Houseal, Jr., both of Hershey, Pa., assignors to Hershey Foods Corporation, Hershey, Pa.

Continuation of Ser. No. 821,395, Jan. 22, 1986, abandoned. This application Aug. 3, 1987, Ser. No. 86,171

Int. Cl.^{4} A23G *1/00*

U.S. Cl. 426—427 **7 Claims**



1. A process for removing theobromine and caffeine from cacao beans consisting essentially of the steps of subjecting cacao nibs to a low temperature water extraction at temperatures from about 45° C. to about 55° C. followed by a series of high temperature water extraction steps at temperatures from about 90° C. to about 105° C., said low temperature and high temperature water extraction steps comprising the ratio of 1100 ml of water per 450 grams of cacao nibs, removing the extraction filtrates and then recovering cacao liquor substantially free of theobromine and caffeine from the cacao mass thus obtained.

4,755,392
FOOD COATING COMPOSITIONS

Beatrice A. Banner, West Hill; Lucy V. Richardson, Toronto, and Kenneth S. Darley, Whitby, all of Canada, assignors to The Griffith Laboratories, Limited, Scarborough, Canada

Continuation of Ser. No. 701,162, Feb. 13, 1985, Pat. No. 4,675,197. This application Jan. 9, 1987, Ser. No. 1,957

Claims priority, application United Kingdom, Feb. 13, 1984, [illegible]

The portion of the term of this patent subsequent to Jun. 23, 2004, has been disclaimed.

Int. Cl.^{4} A23P *1/08*

U.S. Cl. 426—555 **3 Claims**

1. A three component food coating composition provided in dry form, consisting essentially of:

(a) a first particulate component sized so that none of the particles is coarser than 16 mesh and up to 40% pass an 80-mesh screen and comprising about 1 to about 10 wt.% of powdered egg albumen, up to about 60 wt.% of flour, and substantially of particulated high density breadcrumbs having a bulk density of about 0.5 to about 0.75 g/cc, a total absorption of about 375 to about 500, an absorption rate of about 15 to about 60 seconds and a moisture content of about 6 to about 10 wt.%;
(b) a second particulate component suitable for constitution with water as a batter by the utilization of about 85 to about 125 parts by weight of water for each 100 parts by weight of said second particulate component and comprising flour, corn starch, about 1 to about 5 wt.% of chemical leavening agents and plastic fat in an amount to provide about 4 to about 10 wt.% therein in the batter, said plastic fat being in particulated form and having a sold fat index as follows:

at 10° C.—up to about 75%
at 27° C.—about 15 to about 75%
at 40° C.—about 5 to about 45%; and

(c) a third particulate component comprising low density oriental-style breadcrumbs sized at least 15 wt.% coarser than 8 mesh and having a density of about 0.20 to about 0.40 g/cc.

4,755,393
PROCESS FOR THE PRODUCTION OF MEAT-LIKE FOODSTUFFS

Shigeru Toba, Yokohama; Mariko Kawabe, Tokyo; Takahiko Soeda, Chigasaki, and Masao Toshima, Yokohama, all of Japan, assignors to Ajinomoto General Foods Protein, Inc., Tokyo, Japan

Filed Jul. 8, 1983, Ser. No. 511,815

Int. Cl.^{4} A23J *3/00*

U.S. Cl. 426—613 **6 Claims**

1. A process for producing a meat-like foodstuff which comprises mixing:

(a) an oil in water emulsion having a compression oil-releasing ratio of at least 15% and composed mainly of (a) protein, (b) fat and oil, (c) water, the weight ratio of (a):(b):(c) being 1:6.3–40:1–20;
(b) a fibrous protein which is prepared by kneading a mixture of a vegetable protein-containing substance and water, orientating the resulting mixture by applying shear stress in a heated state and, thereafter, splitting it; and
(c) a binder, and molding and heating the resulting mixture.

4,755,394
ELECTROCONDUCTIVE ARTICLES AND A METHOD OF PRODUCING THE SAME

Masumi Aoki, Higashimurayama; Takashi Kitamura, Hachioji, and Takeshi Ohashi, Iruma, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Division of Ser. No. 720,938, Apr. 8, 1985, abandoned. This application Jan. 28, 1987, Ser. No. 7,695

Claims priority, application Japan, Apr. 6, 1984, 59-67463; Nov. 9, 1984, 59-236379

Int. Cl.^{4} B05D *5/12*

U.S. Cl. 427—123 **12 Claims**

1. An electroconductive article comprising a polar group-containing polyurethane foam, and an electroconductive layer of cupric sulfide formed therein, wherein said electroconductive article is produced by the process comprising immersing the polar group-containing polyurethane foam in an aqueous solution containing a bivalent copper compound and a reducing agent or an aqueous solution containing a monovalent copper compound, and at the same time or subsequently, treating the foam in a solution of a sulfur releasable substance.

4,755,395
PREPARATION OF ACICULAR COBALT-CONTAINING FERRIMAGNETIC IRON OXIDES

Werner Steck, Ludwigshafen; Rainer Feser, Hessheim; Werner Loeser, Ludwigshafen; Peter Rudolf, Maxdorf; Guenter Vaeth, Limburgerhof; Helmut Jakusch, Frankenthal, and Jenoe Kovacs, Hessheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed May 5, 1986, Ser. No. 859,902

Claims priority, application Fed. Rep. of Germany, May 10, 1985, [illegible]

Int. Cl.^{4} C01G *49/06*

U.S. Cl. 427—127 **3 Claims**

1. A process for preparing acicular cobalt-containing ferrimagnetic iron oxide exhibiting high luminance signal-to-noise ratio in a magnetic recording medium comprising producing,

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in a first stage, a suspension of γ-FeOOH nuclei in the presence of from 0.2 to 1.0% by weight, based on the amount of γ-FeOOH end product, of phosphate ions by adding alkalis to an acidic iron (II) salt solution and simultaneously carrying out oxidation by passing in air, from 25 to 60 mol % of the iron (II) ions present being converted into γ-FeOOH nuclei, and then, in a second stage, growing the said nuclei at 20° to 70° C. by keeping the pH value at 4.0 to 5.5 by the addition of further amounts of alkali and further passing of air through the suspension, to form γ-FeOOH end product, filtering and washing said end product, dehydrating the washed end product at 300°–600° C. and then reducing the dehydrated end product to magnetite by means of organic substances which are decomposable in the presence of iron oxide, subsequently oxidizing said magnetite with oxygen-containing gases to gamma-iron (III) oxide, and then modifying said gamma-iron (III) oxide by precipitating iron (II) hydroxide and cobalt (II) hydroxide onto said gamma-iron (III) oxide in an alkaline suspension at a pH of not less than 10 and filtering the modified gamma-iron (III) oxide and heating it at 100°–350° C. under inert gas.

4,755,396
IMAGE RECEIVING ELEMENT FOR THERMAL PRINTERS

Thomas C. Geisler; Terrence A. Black, both of P.O. Box 33427, St. Paul, Minn. 55133-3427
Continuation of Ser. No. 679,819, Dec. 10, 1984, abandoned. This application Aug. 25, 1986, Ser. No. 899,654
Int. Cl.⁴ B41M *5/26*
U.S. Cl. 427—197 **22 Claims**

1. Image receiving element comprising a substrate bearing on at least one major surface thereof an image receptive coating comprising a material capable of existing in a supercooled state after melting and subsequent cooling, said material having a melting temperature about 10° C. above ambient temperature and comprising 75 weight percent to 99 weight percent of the coating, wax anti-fouling agent comprising 1 weight percent to 16 weight percent of the coating, and binder comprising up to 40 weight percent of the coating.

12. A method of preparing an image comprising the steps of:
(1) providing the image receiving element of claim 1,
(2) causing the image receptive coating to become tacky or fluid in image areas upon imagewise application of heat, said heat being provided by a thermal print head, and
(3) developing the image by adhering an imaging powder to the tacky or fluid image areas.

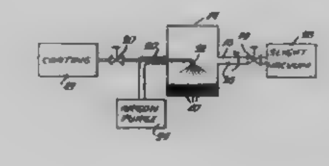
4,755,397
STARCH BASED PARTICULATE ENCAPSULATION PROCESS

James Eden, East Millstone; Ralph Trksak, Manville, both of N.J., and Robert Williams, Homosassa, Fla., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.
Filed Dec. 24, 1986, Ser. No. 946,266
Int. Cl.⁴ A61K *9/62;* **B01J** *13/02;* **C09C** *1/24, 3/10*
U.S. Cl. 427—213.3 **9 Claims**

1. A process for the encapsulation of materials in a particulate form starch matrix comprising the steps of:
(1) slurrying the starch and the material to be encapsulated in a saturated aqueous solution of salt;
(2) thoroughly dispersing the starch in the presence of the salt by injecting steam at a pressure of at least 110 psi into the slurry to raise its temperature to 120° to 180° C. at a pressure of 55–120 psi or above;
(3) instantly reducing the pressure developed during step 2 to atmospheric pressure so as to reduce the temperature to 112° C. or less; and
(4) recovering the precipitated encapsulated material.

4,755,398
POWER SOURCE UTILIZING ENCAPSULATED LITHIUM PELLETS AND METHOD OF MAKING SUCH PELLETS

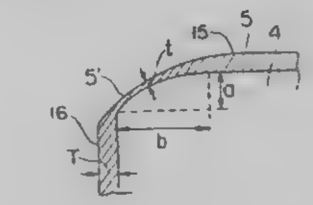
John T. Buford, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.
Division of Ser. No. 901,575, Aug. 29, 1986, Pat. No. 4,714,051, which is a division of Ser. No. 618,893, Jun. 8, 1984, Pat. No. 4,634,479. This application Jan. 21, 1987, Ser. No. 5,581
Int. Cl.⁴ B05D *3/00, 7/00;* **C06B** *21/00*
U.S. Cl. 427—216 **9 Claims**



1. A method of encapsulating lithium metal comprising:
(a) subjecting lithium metal in the solid phase to a liquid containing an effective amount of a predominantly fluorine substituted polymeric material and a carrier therefor, said carrier being non-reactive with said lithium; and
(b) evaporating the carrier;
(c) at least step (a) being performed in an atmosphere inert to lithium metal.

4,755,399
PROCESS FOR THE PRODUCTION OF A CUTTING TOOL

Hiroshi Fujii, Aichi; Akio Hara, Itami; Mitsunori Kobayashi, Itami, and Yoshikatsu Mori, Itami, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Division of Ser. No. 610,791, May 16, 1984, Pat. No. 4,643,620. This application Oct. 17, 1986, Ser. No. 920,061
Claims priority, application Japan, May 27, 1983, 58-94743
Int. Cl.⁴ B05D *3/00, 5/00*
U.S. Cl. 427—277 **3 Claims**



1. A process for the production of a cutting tool having a rake face and a flank face which intersect to form a cutting edge, said cutting tool comprising a substrate consisting of a sintered hard metal and a coating film provided thereon consisting of a material with a higher hardness than the substrate, which comprises subjecting the substrate to a coating treatment and honing treatment in such a manner that said coating film near the cutting edge has such a thickness that the thickness continuously increases in directions away from the cutting edge along both the rake face and the flank face from a minimum value, including zero, at the cutting edge, such that the thickness of the coating at the rake face reaches a maximum thickness at a first distance from the cutting edge and the thickness at the flank face reaches a maximum thickness at a second distance from the cutting edge, the first distance being greater than the second distance.

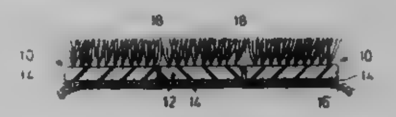
4,755,400
HOT ROLL FUSER AND METHOD OF MAKING A FUSER ROLL

Lawrence P. Dempsey, Longmont; Dean S. Ehn, Boulder; Reid W. Gunnell, Berthoud, all of Colo.; Bruce P. Reinhardt, Minnetonka, Minn., and Lance A. Walker, Longmont, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 19, 1987, Ser. No. 27,701
Int. Cl.⁴ B05D *3/02*
U.S. Cl. 427—318 **27 Claims**

1. A method of manufacturing a polymer coated electrophotographic fuser roll comprising the sequential steps of:
applying primer coat means (11 and 12) to a cylindrical metal roll (10),
applying a first coat (16) of a fluoropolymer to said primer coat means,
heating, without curing, said first fluoropolymer coat,
applying a second coat (15) of a fluoropolymer to said first fluoropolymer coat,
curing said first and second fluoropolymer coatings at an elevated temperature, and
polishing the exposed surface (17) of said second fluoropolymer coat in a manner that generates sufficient heat to increase the hardness and to lower the surface energy of said coated roll in the absence of additional coats.

4,755,401
ARTIFICIAL TURF WITH PLAYING FIELD MARKINGS

Hans-Joachim Friedrich, Auenwald, and Otfried von Kries, Dietenheim, both of Fed. Rep. of Germany, assignors to J. F. Adolff AG, Backnang, Fed. Rep. of Germany
Filed Feb. 2, 1987, Ser. No. 9,755
Claims priority, application Fed. Rep. of Germany, Feb. 5, [illegible]
Int. Cl.⁴ A41G *1/00*
U.S. Cl. 428—17 **10 Claims**



1. A ground covering with marking lines, comprising:
a first area of artificial turf material having a first edge;
a strip material being disposed adjacent to said first edge forming a first interface therebetween;
hook and loop fastening tape means attached to the underside of both said first area of artificial turf material and said strip material, said hook and loop fastening tape means overlapping the first interface between said strip material and said first area of turf material;
said hook and loop fastening tape means comprising first and second tape strips, wherein either said first or said second tape strip comprising a loop fastening strip and the other of said tape strips being a hook fastening strip;
said first tape strip comprising first and second strip elements being independently and firmly joined to the underside of both said first area of artificial turf material and said strip material; and
said second tape strip being a third strip element overlapping the first and second strip elements to join the first and second strip elements together.

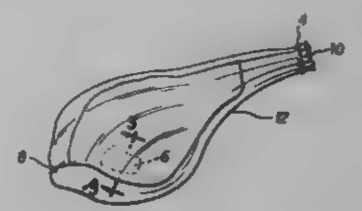
4,755,402
THERMOPLASTIC MULTI-LAYER BARRIER PACKAGING FILM AND BAGS MADE THEREFROM

Timothy T. Oberle, Duncan, S.C., assignor to W. R. Grace & Co., Cryovac Div., Duncan, S.C.
Filed Mar. 3, 1987, Ser. No. 21,113
Int. Cl.⁴ B65D *65/02;* **B32B** *27/34*
U.S. Cl. 428—35 **15 Claims**

1. A multi-layer heat-shrinkable (oriented) film comprising a barrier layer of polyvinylidene chloride copolymer and an outer layer of polyamide, said polyamide layer being directly adhered to the barrier layer in face to face contact without the use of an intermediate adhesive layer, and said polyamide having a melting point below about 160° C., and wherein said polyvinylidene chloride copolymer and said polyamide have been simultaneously coextruded through an unmodified die.

4,755,403
PROTECTIVE PATCH FOR SHRINKABLE BAG

Daniel J. Ferguson, Spartanburg, S.C., assignor to W. R. Grace & Co., Cryovac Div., Duncan, S.C.
Division of Ser. No. 740,360, Jun. 3, 1985, abandoned. This application Apr. 10, 1987, Ser. No. 36,739
Int. Cl.⁴ [illegible]
U.S. Cl. 428—35 **31 Claims**



1. A protective multi-layer patch in combination with a biaxially heat shrinkable bag, said patch comprising:
(I) an outer layer comprising a linear low density polethylene;
(II) an inner layer comprising an ethylene-vinyl acetate copolymer;
(III) said patch being biaxially heat shrinkable, and being adhered to said bag;
(IV) wherein said patch will shrink with the bag, thereby reducing the tendency of the patch to delaminate from the bag.

4,755,404
REFILLABLE POLYESTER BEVERAGE BOTTLE AND PREFORM FOR FORMING SAME

Wayne N. Collette, Merrimack, N.H., assignor to Continental PET Technologies, Inc., Norwalk, Conn.
Continuation-in-part of Ser. No. 868,729, May 30, 1986, Pat. No. 4,725,464. This application Feb. 10, 1987, Ser. No. 12,951
Int. Cl.⁴ B65D *1/02*
U.S. Cl. 428—35 **16 Claims**

1. A returnable/refillable container comprising a blow molded polyester biaxially oriented container having a physical and structural relationship defining means for maintaining commercial aesthetic and functional viability (including a maximum permissible volume deviation of ±1.5%, an absence of crack failure, and no discoloration or other aesthetic changes) over a minimum of at least 5 loops wherein each loop comprises:
(1) an empty state hot commercially equivalent caustic wash at a temperature of at least on the order of 140° F. followed by
(2) contaminant inspection and product filling/capping

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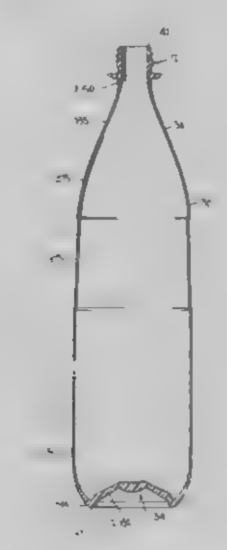
under pressure conditions on the order of 4 atmospheres or higher,
(3) warehouse storage,

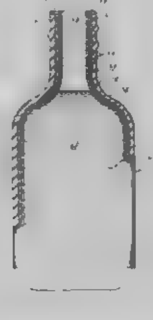


(4) distribution to wholesale and retail locations, and
(5) purchase, use and empty storage by the consumer followed by return to a bottler.

4,755,405
MULTI-WALLED TAMPER-PROOF CONTAINER AND METHOD FOR ENHANCING TAMPER EVIDENCE

Arthur A. Massacco, Natick; E. Joseph Stilwell, Boxford; George E. Pickering, Watertown, all of Mass., and Richard E. Merrill, Winnesquam, N.H., assignors to McNeilab Inc., Fort Washington, Pa.

Filed May 20, 1987, Ser. No. 52,710
Int. Cl.⁴ B65D *55/02*
U.S. Cl. 428—35 10 Claims

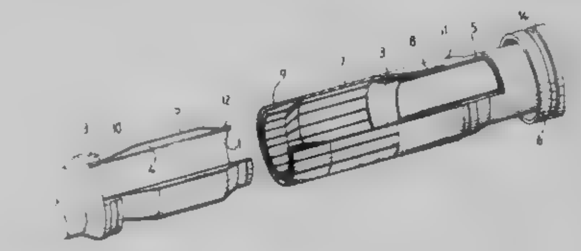


1. Apparatus for providing tampering indication for vessels carrying a liquid by an indication of spoilage upon vessel penetration, comprising:
a vessel having an inner wall, an intermediate dye-carrying wall and an outer wall; all walls being transparent, semi-transparent, or translucent, said dye turning a color different from the color of the liquid in the vessel upon activation by said liquid, said intermediate wall including said dye in particulate form.

[redacted]
METHOD OF FORMING A COMPOSITE MATERIAL TUBE CONNECTION AND A CONNECTION DEVICE [redacted]

Jean-Francois Fuchs, Castelnau, France, assignor to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Oct. 21, 1986, Ser. No. 921,188
Claims priority, application France, Oct. 23, 1985, 85 15734
Int. Cl.⁴ B32B *1/08*
U.S. Cl. 428—36 11 Claims



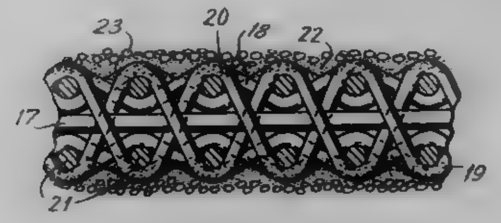
11. A connection device for composite tubes having fiber reinforced resin conduit parts, comprising:
(a) a female end piece comprising insert (2) disposed over an end portion of said conduit part, longitudinal fiber layers (5) wound around said insert (2) at an angle of less than or equal to 20° to the generatrix of the conduit part, strips (7) disposed over said fiber layers (5) at an angle of 0° to the generatrix of the conduitpart and terminating in a thickened end portion directed inwardly, said strips being bound to said longitudinal fiber layer by a circumferential winding;
(b) a male end piece comprising;
an insert having a trapezoidal profile disposed circumferential at the edge zone of said conduit part and a heel and stop disposed circumferentially about said conduit part inwardly from said insert;
(c) annular grooves formed in an outer surface of said circumferential winding of said female end piece, in the terminal portion of said male portion and in said heel portion;
(d) seals disposed in said grooves; and
(e) a sleeve slidably disposed between said male and female end pieces having an inner diameter greater than the outer diameter of said female portion but less than the greatest diameter of said male portion heel, said sleeve portion being a means to lock the terminal portion of said female end portion behind said insert of said male end portion after said male end portion has been inserted into said female end portion, while simultaneously engaging said seals of said stop portion and said circumferential winding.

4,755,407
FIRE-RESISTANT STRAP FABRIC, ARTICLE AND [redacted]

John A. Mortensen, Little Silver, N.J.; Timothy A. Sands, Hughsville, Pa.; Mark P. Henderson, Chatham, N.J.; Richard P. Lee, Hagerstown, Md., and Linda B. Patterson, Martinsburg, W. Va., assignors to C.M.Offray & Son, Inc., Chester, N.J.

Filed Sep. 22, 1986, Ser. No. 909,579
Int. Cl.⁴ G02B *5/128*
U.S. Cl. 428—36 18 Claims

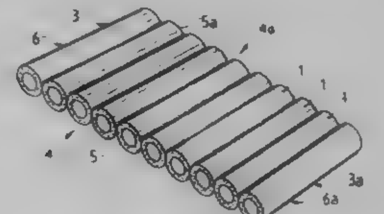
1. As a new article of manufacture, a wear- and fire-resistant strap material for supporting a portable fire fighting apparatus on the body of a wearer comprising a flexible web of heat - and fire resistant-fabric, a heat- and fire-resistant adhesive coating formed on at least one surface of said web, said coating embodying a multiplicity of reflective particles, and a substantially continuous layer of transparent glass beads bonded by said adhesive coating to said fabric, said beads defining an outer layer of said strap.



[redacted]
FOAM PANELS AND BLOCKS OF HOLLOW PROFILES

Gert Noël, Hauset, Belgium, assignor to Noel, Marquet & Cie. S.A., Fed. Rep. of Germany

Filed Nov. 17, 1986, Ser. No. 931,236
Claims priority, application Fed. Rep. of Germany, Nov. 19, 1985, 3541052
Int. Cl.⁴ E04C *1/08, 2/44;* B32B *3/20*
U.S. Cl. 428—36 38 Claims

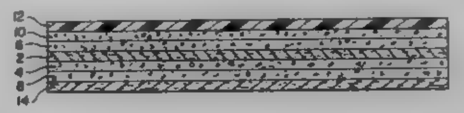


1. A block comprising a panel formed of a plurality of hollow profiles formed of synthetic resin foam material, which profiles are adhered or welded to one another.

4,755,409
WATERPROOFING LAMINATE

Alex W. Harkness, Gibsonia, Pa., assignor to Hyload Corporation, Pittsburgh, Pa.

Filed Jan. 24, 1986, Ser. No. 822,209
Int. Cl.⁴ B32B *11/04;* C09J *7/02;* D06N *5/00*
U.S. Cl. 428—40 5 Claims

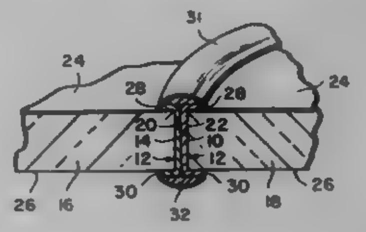


1. A waterproof laminate comprising
a reinforcing sheet,
a first bitumen layer secured to one surface of said reinforcing sheet,
a second bitumen layer secured to the other surface of said reinforcing sheet,
a first compound bitumen layer secured to said first bitumen layer
a second compound bitumen layer secured to said second bitumen layer,
said first and second compound bitumen layer containing a material selected from the group consisting of natural rubber, synthetic rubber, natural resin, and synthetic resin,
said elastomeric sheet containing a material selected from the group consisting of polyisobutylene, chlorinated polyethylene, natural rubber, polyvinyl chloride and ethylene vinyl acetate,
an elastomeric sheet secured to said first compound bitumen layer, and
a release sheet secured to said second compound bitumen layer, whereby removal of said release sheet will permit securement of said waterproofing laminate to a surface.

[redacted]
ADHESIVE COPPER STRIP WITH AN OPAQUE COVERING

Lewis S. Cohen, Hingham, Mass., assignor to Venture Tape Corp., Rockland, Mass.

Filed Jan. 17, 1986, Ser. No. 875,265
Int. Cl.⁴ B32B *3/00, 7/10;* C09J *7/02*
U.S. Cl. 428—58 9 Claims



1. A composite formed of interconnected sections of glass comprising:
a first section of glass having a first edge and opposed front and back surfaces;
a second section of glass having a second edge and opposed front and back surfaces, said second edge of said second section being in confronting, closely spaced relation with said first edge of said first section;
a first strip of copper foil adhesively secured on a back side thereof to said first edge of said first section and to adjacent portions of said front and back surfaces of said first section;
a second strip of copper foil adhesively secured on a back side thereof to said second edge of said second section and to adjacent portions of said front and back surfaces of said second section, each of said first and said second strips of copper foil comprising a layer a copper, a layer of a pressure sensitive adhesive disposed on a back side of said layer of copper, and opaque means covering said back side of said layer of copper, said opaque means comprising a quantity of black particles dispersed uniformly throughout said adhesive layer and preventing said back side of said layer of copper from being visible; and
a bead of solder for securing together said first and said second strips of copper foil.

4,755,411
CUSHION HAVING FLEXIBLE OUTER MEMBRANE AND MULTI-DENSITY RESILIENT FOAM MEMBER [redacted]

William W. Wing, Menomonee Falls, and Michael Van Dine, Dousman, both of Wis., assignors to MILSCO Limited, Reno, Nev.

Filed Apr. 22, 1987, Ser. No. 41,160
Int. Cl.⁴ A47C *5/00, 27/14;* B32B *5/14, 5/20*
U.S. Cl. 428—71 9 Claims

1. A cushion comprising:
a flexible membrane;
and a foam article bonded to said flexible membrane,
said foam article comprising a plurality of foam regions of different relative hardness,
said foam regions being bonded together at any common

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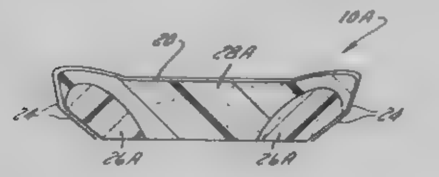
boundary therebetween by materials of which said foam regions are made,



each of said foam regions being bonded at any common boundary between that foam region and said flexible membrane by the material of which said foam region is made.

4,755,412

PACKING LAMINATE IN THE FORM OF A WEB AND A METHOD FOR MANUFACTURING THE SAME

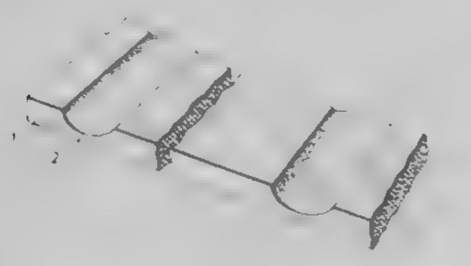
Jan-Erik Glans, Kävlinge, and Sven G. Nilsson, Malmö, both of Sweden, assignors to Tetra Pak International AB, Lund, [redacted]

Filed Nov. 3, 1982, Ser. No. 438,649

Claims priority, application Sweden, Nov. 5, 1981, 8106547

Int. Cl.⁴ B32B *3/04*

U.S. Cl. 428—121 11 Claims



1. In the manufacture of a packing laminate in the form of a web having at least a layer of paper as a stiffening material, a method of processing and dividing a web of raw stiffening material comprising the steps of:

reducing the thickness of the raw material web within longitudinal zones located at regularly spaced intervals over the width of the web by cutting away a portion of the stiffening materials in said zones;

covering the web of raw material by applying a layer of thermoplastic material which covers said zones and the material situated between said zones; and,

dividing the web into individual packing material webs by making longitudinal cuts in said zones.

4,755,413

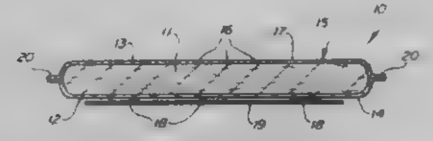
APERTURED FILM FACING AND METHOD OF MAKING THE SAME

Ronald R. Morris, Watchung, N.J., assignor to Chicopee, New Brunswick, N.J.

Filed May 22, 1986, Ser. No. 866,830

Int. Cl.⁴ B32B *3/10*

U.S. Cl. 428—138 6 Claims



1. An apertured film facing material comprising a thin flexible hydrophobic plastic film having apertures therein, the edge of said apertures being coated with a hydrophilic material to promote fluid transfer through the apertures.

4,755,414

WEATHERABLE RIGID VINYL ARTICLES

Emilia E. Lacatus, North Olmsted; Elvira B. Rabinovitch, South Euclid, and James W. Summers, Bay Village, all of Ohio, assignors to The BF Goodrich Company, Akron, Ohio

Division of Ser. No. 868,857, May 30, 1986, Pat. No. 4,728,677. This application Dec. 3, 1987, Ser. No. 128,138

Int. Cl.⁴ B32B *3/00;* **E04C** *1/00*

U.S. Cl. 428—156 4 Claims

1. A rigid shaped article characterized by said article being formed from a vinyl halide polymer composition comprising:

(a) 100 parts by weight of vinyl halide polymer;

(b) from about 1.0 to about 5.0 parts by weight of non-maleate tin carboxylate stabilizer;

(c) a coloring amount of an infrared reflecting pigment;

(d) from 0 to less than about 1.0 part by weight of a sulfur containing tin stabilizer;

(e) less than 0.5 part by weight of calcium stearate; wherein said composition has a ΔE color change upon QUV accelerated weathering tester for 350 hours of less than about 4.0, a ΔE less than about 8.0 after 700 hours exposure and a ΔE less than 12.0 after 1050 hours exposure; and wherein said composition has a dynamic heat stability greater than about 10.0 minutes wherein said article is substantially free of TiO_2.

4,755,415

OPTICAL SHUTTER ARRAY AND METHOD FOR MAKING

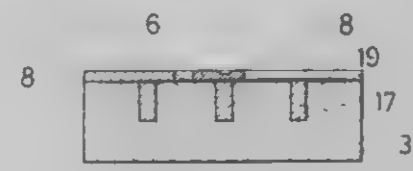
Toshio Iijima, Warabi; Nobuharu Nozaki, Mimami-Ashigara; Hiroshi Sunagawa, Minami-Ashigara, and Kazuhiro Kawashiri, Hachioji, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 3, 1986, Ser. No. 914,972

Claims priority, application Japan, Oct. 3, 1985, 60-221056; Oct. 3, 1985, 60-221058; Oct. 3, 1985, 60-221059

Int. Cl.⁴ B05D *5/06;* **G02B** *6/10*

U.S. Cl. 428—163 34 Claims



1. An optical shutter array comprising

a transparent substrate formed of a material exhibiting an electrooptic effect, said substrate being provided with at least two parallel extending channels, and

electrodes of a conductive resin composition disposed in the channels.

4,755,416

PROCESS FOR CONSTRUCTING A STRUCTURAL [redacted]

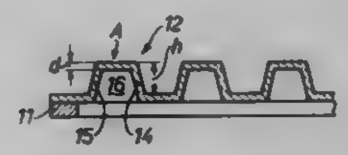
Alfred Schneider, Zurich, and Hans R. Tschudi, Monchaltdorf, both of Switzerland, assignors to Matec Holding AG, Kus[redacted]

Filed May 13, 1987, Ser. No. 49,179

Claims priority, application Switzerland, May 16, 1986, 2006/86

Int. Cl.⁴ B32B *3/24, 5/32*

U.S. Cl. 428—167 12 Claims



1. A process for constructing a structural element that absorbs airborne sound and has a plurality of cup-shaped protuberances, the top surfaces of which that act as resonance surfaces are excited by impinging sound energy to perform oscillations, said sound energy being at least partially absorbed and changed into heat, characterized in that for an optimal sound absorption by means of resonant vibrations the thickness d of the resonance surfaces is developed according to the formula

$$3 \cdot \left(\frac{K_1}{f_0} + \frac{K_2}{f_0^2 h} \right) \leqq 4 \cdot d \leqq 5 \cdot \left(\frac{K_1}{f_0} + \frac{K_2}{f_0^2 h} \right)$$

and the area size A of each resonance surface is developed according to the formula

$$A \quad K_3 \frac{d}{f_0} \sqrt{1 + q}$$

$$\text{with } q = \frac{1}{f_0 h} \cdot \frac{K_2}{K_1}$$

in which formulas h is the height of the protuberance and f_0 is the resonance frequency, and K_1, K_2 and K_3 are constants that are dependent on the material of the structural element and on the type of vibration of the resonance surface.

4,755,417

METHOD TO ENSURE THE COOLING OF ELECTRONIC COMPONENTS FIXED ON A MULTILAYER FOR PRINTED CIRCUITS AND MULTILAYER REALIZED ACCORDING TO SAID METHOD

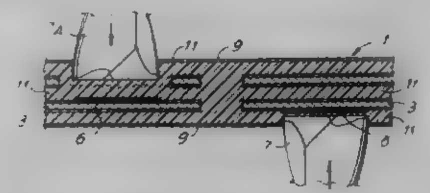
Renzo B. Detoma, Florence, Italy, assignor to Mas Industriale S.p.A., Pistoia, Italy

Filed Jun. 4, 1986, Ser. No. 870,522

Claims priority, application Italy, Jun. 17, 1985, 9428 A/85

Int. Cl.⁴ B32B *3/00;* **H05K** *1/00*

U.S. Cl. 428—209 18 Claims



1. A multilayer board for printed circuits comprising in combination at least one metallic layer embedded within layers of insulating material, and in contact with at least one surface of said embedded metallic layer, a layer of a different material disposed at least over predetermined areas of said embedded layer, said different material having physical parameters that are different and distinguishable from the other layers of said board such that engagement of said layer of different material by a cutting tool entering through said insulating material can be detected to interrupt penetration of said tool as soon as said tool strips said different material to expose said embedded layer but before said embedded layer is penetrated by said tool.

[redacted]

[redacted]

Tapan K. DebRoy, Novi, and Ding-Yu Chung, Farmington Hills, both of Mich., assignors to BASF Corporation, Clifton, N.J.

Continuation-in-part of Ser. No. 766,238, Aug. 12, 1985, abandoned. This application Oct. 20, 1986, Ser. No. 921,559

Int. Cl.⁴ C25D *13/06;* **B32B** *7/02, 27/38;* **B32G** *15/08*

U.S. Cl. 428—215 3 Claims

1. A method of preventing the yellowing of the outermost clear coating of a multicoat top coat coating system comprising

a. depositing onto a conductive substrate by cathodic electrodeposition a primer coating comprising at least one layer of an amine-epoxy resin adduct and a blocked crosslinking agent, and curing said primer coating to a hard durable film;

b. depositing a pigmented base coat/clear outer coat coating system as a top coat onto the primer coating by initially depositing at least one layer of a pigmented film-forming base coat onto the primer, said base coat comprising pigment and resin, said base coat having a conventional viscosity and said base coat further having a dry film thickness of about 0.7 to about 1.4 mils, and then depositing directly onto the pigmented basecoat at least one layer of a clear film-forming outer coat, said clear coat having a dry film thickness of about 1.2 to about 1.8 mils, and then curing the base coat and clear coat to form the base coat/clear coat top coat coating,

wherein the primer coating contains at least one blocked crosslinking agent selected from the group consisting of aliphatic polyisocyanates containing at least six carbon atoms, the isocyanurates of aliphatic polyisocyanates containing at least six carbon atoms, aromatic polyisocyanates having a molecular weight greater than 174, and the isocyanurates of aromatic diisocyanates having a molecular weight greater than 174, the polyisocyanate or isocyanurate blocked with a blocking agent.

4,755,419

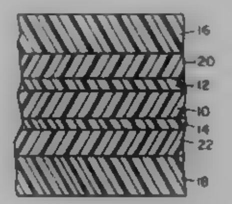
OXYGEN BARRIER ORIENTED SHRINK FILM

Gautam P. Shah, Simpsonville, S.C., assignor to W. R. Grace & Co., Cryovac Div., Duncan, S.C.

Filed Mar. 21, 1986, Ser. No. 842,600

Int. Cl.⁴ B32B *27/08*

U.S. Cl. 428—220 23 Claims



1. A biaxially oriented coextruded film having at least seven layers arranged symmetrically comprising:

(a) a core layer comprising an ethylene vinyl alcohol copoly[redacted]

(b) two intermediate layers each comprising a polyamide;

(c) two outer layers each comprising a blend of polymeric material taken from the group consisting of (i) a blend of a linear low density polyethylene, a linear medium density polyethylene, and an ethylene vinyl acetate copolymer, and (ii) a blend of an ethylene propylene copolymer and a polypropylene;

(d) two layers, each comprising an adhesive polymeric mate-

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rial, which adhere each of said intermediate layers to a respective outer layer; and

(e) said film having a total thickness of from about 0.5 mils to about 2 mils.

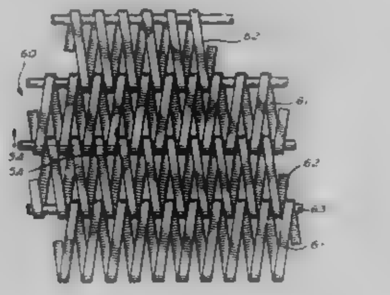
4,755,420
DRYER FABRIC HAVING WARP STRANDS MADE OF MELT-EXTRUDABLE POLYPHENYLENE SULFIDE

Samuel M. Baker, Carleton Place; F. Brian Best, Ottawa, both of Canada, and Girish M. Bhatt, Williston, Vt., assignors to JWI Ltd., Ontario, Canada

Continuation-in-part of Ser. No. 727,665, Apr. 26, 1985, abandoned, which is a continuation-in-part of Ser. No. 605,825, May 1, 1984, abandoned. This application Jan. 24, 1986, Ser. No. [illegible]

Int. Cl.⁴ D03D *13/00*

U.S. Cl. 428—222 15 Claims



1. A dryer fabric for use in a dryer section of a paper machine, comprising a woven fabric or a fabric of a plurality of helical coils connected together by hinge pins, wherein at least a portion of the machine direction components of the fabric are made from monofilaments composed of a blend of polyphenylene sulfide and from an effective amount to up to about 20% by weight of an additive which imparts toughness to the monofilament without substantially reducing the hydrolysis resistance inherent in polyphenylene sulfide, said additive having a higher melt viscosity than the polyphenylene sulfide at extrusion temperatures, resistance to thermal degradation at extrusion temperatures, and chemical compatibility with said polyphenylene sulfide, and wherein said additive is present in small discrete elongated globules with the long axis of said globules parallel to the axis of the monofilament

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4,755,421
HYDROENTANGLED DISINTEGRATABLE FABRIC

James H. Manning, Appleton, Wis.; Joseph H. Miller, Greenville, and Thomas E. Quantrille, Simpsonville, both of S.C., assignors to James River Corporation of Virginia, Richmond, Va.

Filed Aug. 7, 1987, Ser. No. 82,512

Int. Cl.⁴ B32B *3/10*

U.S. Cl. 428—224 13 Claims

1. A nonwoven fibrous web having a basis weight in the range of 20 to 90 grams per square meter, said web being characterized by sufficient wet strength in an aqueous environment to enable its use as a wet wiper and by being capable of disintegrating under mild agitation in water and decomposing in a septic system, which web comprises at least 70 weight percent wood pulp fibers and at least 5 weight percent short staple length regenerated cellulose fibers, said fibers being hydroentangled together to form a composite web having a wet tensile strength of at least 250 grams per inch.

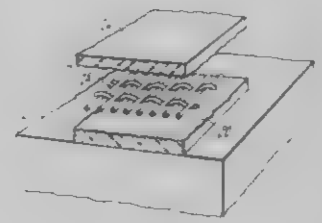
4,755,422
MULTILAYERED ELECTRONICS PROTECTION SYSTEM

Stephen E. Hendrick, and Charles E. Cataldo, both of Huntsville, Ala., assignors to United Technologies Corporation, Hartford, Conn.

Filed Apr. 17, 1986, Ser. No. 853,246

Int. Cl.⁴ B32B *7/00*

U.S. Cl. 428—256 15 Claims



1. A multilayered electronics protection system affixed to a non-metallic surface enclosing electronics comprising:

first ablator layer means applied to the non-metallic surface, bonding thereto, providing thermal protection;

second ablator layer means applied on and adhering to said first ablator layer, including highly conductive material providing protection against strategic environmental threats and additional thermal protection.

4,755,423
LAMINATE

Wolfgang Greiser, Neusäss/Hainhofen; Kurt Plötz, Bobingen; Hans Wagner, Bobingen, and Karl-Christian Zerfass, Bobingen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 19, 1987, Ser. No. 16,239

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1986, 3605830

Int. Cl.⁴ B32B *15/00*

U.S. Cl. 428—284 7 Claims

1. A laminate, having improved dimensional stability and fire resistance and being preferably applied as a carrier web for roofing sheets, comprising the combination of a preconsolidated synthetic fiber web and a preconsolidated mineral fiber web, which are bonded to each other by needling, wherein the mineral fiber web contains longitudinal reinforcing yarns made of a mineral material.

4,755,424
POLYIMIDE FILM HAVING IMPROVED ADHESIVE PROPERTIES

Yoshiki Takeoka, Osaka; Hideki Kawai, and Tsuneo Yamamoto, both of Ohtsu, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 20, 1987, Ser. No. 5,050

Claims priority, application Japan, Jan. 23, 1986, 61-12683

Int. Cl.⁴ B32B *5/16, 15/08, 27/06*

U.S. Cl. 428—323 3 Claims

1. A polyimide film produced by forming a polyimide film having a thickness of 7.5 to 125 μm from a raw material incorporated with a finely divided inorganic powder having a particle size of 1 to 5 μm that forms minute projections on the surface of the formed film, and subsequently subjecting the formed film to a corona discharge treatment.

4,755,425
RETROREFLECTIVE SHEET COATED WITH SILICA LAYER

Tzu L. J. Huang, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 9, 1987, Ser. No. 23,375

Int. Cl.⁴ B32B *5/16;* G02B *5/128;* C09K *3/18;* C08K *3/36*

U.S. Cl. 428—331 10 Claims

1. A retroreflective sheet having a transparent, protective coating comprising silica and a transparent polymer selected from the group consisting of:

aliphatic polyurethanes and

polyvinyl chloride copolymers having a minor amount, not more than 15 weight percent, of comonomer containing at least one carboxylic acid or hydroxyl moiety,

wherein the silica comprises about 10–80 weight percent of the transparent protective coating.

4,755,426
MAGNETIC RECORDING MEDIUM AND PRODUCTION OF THE SAME

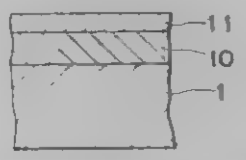
Fumio Kokai, Palo Alto, Calif.; Minoru Ichijo, Toride, and Kunio Wakai, Ibaraki, both of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Filed Jan. 14, 1987, Ser. No. 3,287

Claims priority, application Japan, Jan. 18, 1986, 61-8505; Jan. 24, 1986, 61-12121

Int. Cl.⁴ G11B *5/70, 5/72*

U.S. Cl. 428—336 14 Claims



1. A magnetic recording medium comprising a substrate, a magnetic layer on the substrate and a protective layer which is formed directly on the magnetic layer, said protective layer comprising an amorphous carbonaceous layer consisting essentially of carbon, hydrogen and oxygen, in which an atomic ratio of carbon/hydrogen is in the range of 100/100 to 500/1 and an atomic ratio of carbon/oxygen is in the range of 100/100 to 1,000/1.

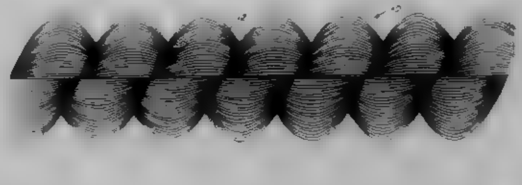
4,755,427
[illegible]

Craig L. Cartwright, Manhatten Beach, Calif., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Dec. 23, 1985, Ser. No. 812,398

Int. Cl.⁴ D02G *3/00*

U.S. Cl. 428—361 3 Claims



1. Helical fibers for use as a filler material in the formation of composite plastic structures to improve the strength, modulus, or isotropicity thereof comprising a plurality of glass fibers, each fiber being wound in a helix, coated with a silane coupling agent, stress relieved by annealing and having a relatively short length of about one-fourth inch.

4,755,428
POLYIMIDE POWDER AND METHOD FOR PRODUCING THE SAME

Yuzuru Noda, Kyoto; Keizo Mizobe, Saitama, and Masanori Imai, Fukui, all of Japan, assignors to Nitto Electric Industrial Co., Ltd., Osaka, Japan

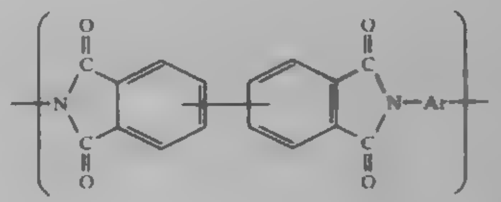
Filed Apr. 18, 1986, Ser. No. 853,521

Claims priority, application Japan, Apr. 18, 1985, 60-83884

Int. Cl.¹ B32B *3/16, 27/00;* C08G *73/10;* C08J *3/12*

U.S. Cl. 428—402 2 Claims

1. A polyimide powder having pleats formed on the outer circumferential surface thereof comprising spherical polyimide particles having a particle size distribution of from 0.5 to 20 μm and a mean particle diameter of from 1 to 15 μm, and comprising a repeating unit represented by the formula



wherein Ar represent an aromatic diamine residue, which polyimide powder is formed by the process which comprises:

preparing a solution of a high molecular weight polyamide acid obtained by reacting biphenyltetracarboxylic dianhydrides and an aromatic diamino compound;

heating the solution to a temperature of from 140° to 250° C. to imidate the polyamide acid while simultaneously removing condensation water produced by the imidation from the solution, thereby precipitating polyimide articles to yield a slurry;

separating the polyimide particles from the slurry; and

drying the polyimide particles by heating at a temperature of from 100° to 400° C. to thereby obtain said polyimide powder.

4,755,429
COMPOSITE GRAPHITE SEPARATOR PLATE FOR FUEL CELL STACK

Richard C. Nickols, East Hartford, and Paul R. Watson, Marlborough, both of Conn., assignors to International Fuel Cells Corporation, South Windsor, Conn.

Filed Nov. 3, 1986, Ser. No. 926,274

Int. Cl.⁴ B32B *9/00, 3/00;* F16B *5/00;* B29C *65/00*

U.S. Cl. 428—408 1 Claim

1. A compound plate for use in a high temperature acidic electrochemical cell environment, said plate being formed from a plurality of thin press molded component plates formed from carbon in a resinous binder, each of said component plates being bonded to at least one adjacent component plate along a joint formed at edges of said component plates wherein said edges are formed with tapered scarf cuts having matched included angles of about 15° and having a surface finish in the

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range of about 16 microinch to about 63 microinch to promote adhesive bonding, said tapered scarf cuts being coated with a fluoropolymer resin adhesive, overlapped in face-to-face mating contact, and bonded together under heat and pressure

sufficient to melt said resin to form a mechanical bond between said component plates at said joint, said joint having a hydrogen permeability of 0.02 cc/Ft^{2}Sec. and a flexural strength of about 4100 psi

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4,755,430
MAGNETIC BUBBLE MEMORY DEVICE

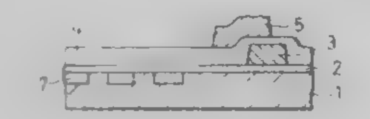
Masatoshi Takeshita, Hachioji; Hiroshi Umezaki, Koganei; Ryo Suzuki, Hachioji; Takashi Toyooka, Sayama; Teruaki Takeuchi, Koganei, and Naoki Kodama, Tachikawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 9, 1987, Ser. No. 12,171

Claims priority, application Japan, Feb. 7, 1986, 61-23767

Int. Cl.^{4} G11C *19/08*

U.S. Cl. 428—411.1 6 Claims



1. In a magnetic bubble memory device comprising
a magnetic film capable of supporting a magnetic bubble;
a first insulator film made of an inorganic material;
a first magnetic bubble propagation track region comprising a conductor pattern, a second insulator film made of a heat-resistant polymer and a pattern made of a soft magnetic material formed on said second insulator film;
a second magnetic bubble propagation track region having ion-implanted propagation tracks which have been formed by selectively implanting an ion into desired regions in said magnetic film;
the improvement wherein a third insulator film made of a heat-resistant polymer is provided on said second insulator film and said pattern made of a soft magnetic material; and
wherein a passivation film made of an inorganic material is provided on said third insulator film and said first insulator film at portions of the first insulator film located in said second magnetic bubble propagation track region.

4,755,431
CHEMICALLY BONDED STRUCTURES OF POLYMERIC MEMBERS

Stoyko C. Fakirov, Sofia, Bulgaria, and Jerold M. Schultz, Newark, Del., assignors to University of Delaware, Newark, Del.

Filed Sep. 30, 1987, Ser. No. 102,940

Int. Cl.^{4} B32B *7/04*

U.S. Cl. 428—420 1 Claim

1. A bonded laminate of crystalline, oriented linear polyester laminae, the laminae being of a composition which loses its crystallinity and orientation upon melting and having a high level of tensile strength imparted by orientation, the bonds being chemical bonds formed by solid state reaction between molecules of each lamina across the interface of contacting surfaces of the laminae by the steps in sequence comprising:
application to at least one of two adjacent surfaces to be bonded of an agent effective in the absence of externally applied radiation to cause chemical reaction between molecules of adjacent laminae;
bringing surfaces having said agent on at least one surface to be bonded together to form a laminate;
urging the surfaces to be bonded into intimate contact with pressure; and
heating the laminate while being urged into contact to a temperature from 10° C. to 100° C. below the melting point of the polyester of the laminate to form a chemically bonded laminate characterized by a high level of tensile strength imparted each lamina by orientation before lamination.

4,755,432
THERMAL TRANSFER RECORDING MEDIUM

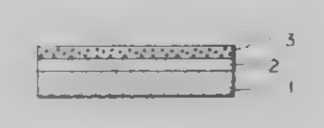
Masao Asano; Yoshiaki Shimizu; Shigehiro Kitamura, and Takao Abe, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jan. 27, 1987, Ser. No. 7,366

Claims priority, application Japan, Jan. 30, 1986, 61-20985

Int. Cl.^{4} B41M *5/26*

U.S. Cl. 428—421 15 Claims



1. In a thermal transfer recording medium having (i) support, (ii) a heat-fusible layer containing a heat-fusible substance and (iii) a thermoplastic layer containing a thermoplastic polymer, at least one of said layers containing a colorant, the improvement wherein at least one of said heat-fusible layer and said thermoplastic layer is formed from an aqueous coating composition and contains a fluorine type surfactant

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4,755,433
COVER FILM ON LIPSTICK SAMPLER

Vinu Patel, Oakdale, and Robert W. H. Chang, Roseville, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 30, 1986, Ser. No. 925,828

Int. Cl.^{4} B32B *27/00;* A61K *7/021*

U.S. Cl. 428—422 22 Claims

1. A multilayered structure for sampling cosmetic compositions comprising a paper base having an oleophobic agent within said paper, a solid cosmetic composition layer containing a wax or emollient component on at least a portion of one surface of said paper base and said structure being characterized by the presence of a thin, frangible oleophilic film coating over said solid cosmetic composition layer.

4,755,434
PROCESS FOR COATING METALLIC SUBSTRATE

Yasuhiro Fujii; Osamu Iwase; Hirosi Oosumimoto; Shinji Sugiura; Ichiro Tabushi; Takashi Udagawa; Masafumi Kume, and Komaharu Matsui, all of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Hyogo, Japan

Filed Dec. 4, 1985, Ser. No. 805,382

Claims priority, application Japan, Dec. 7, 1984, 59-258538; Dec. 7, 1984, 59-258539; Dec. 11, 1984, 59-261219; Dec. 14, 1984, 59-265049; Dec. 14, 1984, 59-265050; Dec. 14, 1984, 59-265051

Int. Cl.^{4} B32B *15/08;* C25D *13/00;* B05D *3/02*

U.S. Cl. 428—461 30 Claims

1. A process for coating a metallic substrate, characterized by applying on a metallic substrate a cationic electrodeposition paint, applying thereon a barrier coat comprising a modified polyolefin resin and capable of forming a barrier coat film having a static glass transition temperature of 0° to −60° C. and a corrosion-preventive pigment, and then applying thereon a top coating paint said modified polyolefin resin being selected from the group consisting of (i) resins obtained by graft-polymerizing maleic acid or maleic anhydride onto base polyolefin resins, (ii) resins obtained by graft-polymerizing acrylic acid or methacrylic acid onto chlorinated products of base polyolefin resins, (iii) copolymers between (a) at least one member selected from ethylenic hydrocarbons and (b) at least one comonomer selected from vinyl acetate, acrylic acid and methacrylic acid, (iv) compositions obtained by adding 1 to 90 parts by weight of chlorinated polyolefins to 100 parts by weight of base polyolefins, (v) compositions obtained by adding 1 to 90 parts by weight of acrylic resins having a static glass transition temperature of 0° C. or lower and a number average molecular weight of 5,000 to 100,000 to 100 parts by weight of base polyolefin resins, and (vi) compositions obtained by adding 1 to 90 parts by weight of a styrene-butadiene copolymer to 100 parts by weight of base polyolefin resins.

30. The metallic substrate coated according to the process of claim 1

4,755,435
PROCESS FOR COATING STEEL PANELS

Yasuhiro Fujii; Osamu Iwase; Hiroshi Oosumimoto; Shinji Sugiura; Ichiro Tabushi; Masafumi Kume; Takashi Udagawa, and Komaharu Matsui, all of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Hyogo, Japan

Filed Nov. 8, 1985, Ser. No. 796,438

Claims priority, application Japan, Nov. 12, 1984, 59-236742; Nov. 13, 1984, 59-237679; Nov. 13, 1984, 59-237680; Nov. 14, 1984, 59-238546; Nov. 16, 1984, 59-240588; Nov. 19, 1984, [illegible]

Int. Cl.^{4} B32B *15/08;* C25D *13/00;* B05D *3/02*

U.S. Cl. 428—461 26 Claims

1. A process for coating a metallic substrate, characterized by applying on a metallic substrate a cationic electrodeposition paint, applying thereon a barrier coat comprising a modified polyolefin resin and capable of forming a barrier coat film having a static glass transition temperature of 0° to −60° C. and then applying thereon a top coating paint said modified polyolefin resin being selected from the group consisting of (i) resins obtained by graft-polymerizing maleic acid or maleic anhydride onto base polyolefin resins, (ii) resins obtained by graft-polymerizing acrylic acid or methacrylic acid onto chlorinated products of base polyolefin resins, (iii) copolymers between (a) at least one member selected form ethylenic hydrocarbons and (b) at least one comonomer selected from vinyl acetate, acrylic acid and methacrylic acid, (iv) compositions obtained by adding 1 to 90 parts by weight of chlorinated polyolefins to 100 parts by weight of base polyolefins, (v) compositions obtained by adding 1 to 90 parts by weight of acrylic resins having a static glass transition temperature of 0° or lower and a number average molecular weight of 5,000 to 100,000 to 100 parts by weight of base polyolefin resins, and (vi) compositions obtained by adding 1 to 90 parts by weight of a styrene-butadiene copolymer to 100 parts by weight of base polyolefin resins.

26. A metallic substrate coated according to the process of claim 1.

4,755,436
INTER-PLY ADHESION BETWEEN SARAN AND LINEAR ETHYLENE COPOLYMERS

Steven B. Garland, Simpsonville, S.C., assignor to W. R. Grace & Co., Cryovac Div., Duncan, S.C.

Filed Jun. 30, 1986, Ser. No. 880,258

Int. Cl.^{4} B32B *27/08*

U.S. Cl. 428—518 4 Claims

1. A multi-layer film having improved adhesion between layers consisting essentially of :
(a) a layer consisting essentially of vinylidene chloride copolymer; and,
(b) a blended layer directly joined to the vinylidene chloride copolymer layer, said blended layer consisting essentially of about 5% to about 40% by weight of ethylene/butylacrylate copolymer having a melting point of about 110° C. blended with about 95% to about 60% by weight of linear ethylene/ alpha-olefin copolymer.

4,755,437
CASTINGS AND THEIR PRODUCTION PROCESS

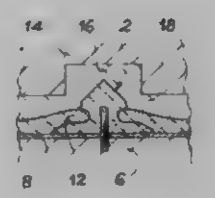
Michele Sabatie, 26 Rue de Saint Come, 95270 Luzarches, and Michel Maree, 8H Rue de la Gruerie, 91190 Gif sur Yvette, both of France

Division of Ser. No. 879,148, Jun. 26, 1986, Pat. No. 4,669,523. This application Mar. 5, 1987, Ser. No. 22,077

Claims priority, application France, Jul. 4, 1985, 85 10221

Int. Cl.^{4} B22D *19/14;* B32B *15/14*

U.S. Cl. 428—614 4 Claims



1. A casting having a solid part constituted by a metal matrix reinforced by a fibrous strengthening member and at least one outgrowth, wherein said outgrowth comprises a non-metallic reinforcing framework, whereof at least part is incorporated into the fibrous strengthening member.

4,755,438
ALUMINUM FILM COATED COPPER MATERIAL

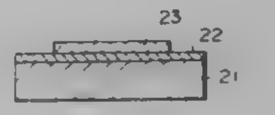
Kiyoshi Morimoto, Mobara, and Toshinori Takagi, Nagaokakyo, both of Japan, assignors to Futaba Denshi Kogyo Kabushiki Kaisha, Mobara, Japan

Filed Sep. 22, 1987, Ser. No. 99,599

Claims priority, application Japan, Sep. 26, 1986, 61-226652

Int. Cl.^{4} B32B *15/20*

U.S. Cl. 428—652 5 Claims



1. A copper base having an aluminum film comprising:
a copper base; and

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an aluminum film having been deposited on a surface of said copper base by ion beam deposition techniques.

4,755,439

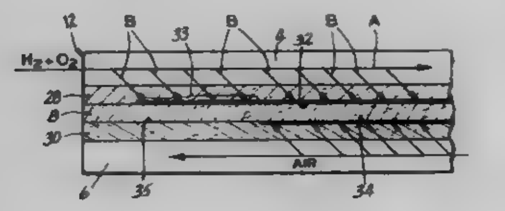
FUEL CELL CONFIGURATION FOR CONTAMINATED FUEL GASES AND METHOD OF USING THE SAME

John C. Trocciola, Glastonbury, and Richard D. Sawyer, Canton, both of Conn., assignors to International Fuel Cells Corporation, South Windsor, Conn.

Filed Mar. 25, 1987, Ser. No. 32,202

Int. Cl.⁴ H01M 8/04

U.S. Cl. 429—22 12 Claims



1. A fuel cell system adapted to use oxygen-contaminated hydrogen rich fuel gas, said system comprising:

- **(a) an electrolyte matrix;**
- **(b) means forming an anode gas space on one side of said electrolyte matrix through which gas space the fuel gas flows from an inlet side of said gas space;**
- **(c) means forming a cathode gas space on a side of said electrolyte matrix opposite said one side;**
- **(d) a porous anode substrate interposed between said anode gas space and said electrolyte matrix;**
- **(e) a porous cathode substrate interposed between said cathode gas space and said electrolyte matrix;**
- **(f) a catalyst layer on said cathode substrate on a side thereof facing said electrolyte matrix; and**
- **(g) a catalyst layer on said anode substrate on a side thereof facing said electrolyte matrix, said catalyst layer on said anode substrate including an extended strip thereof which extends toward said anode gas space inlet side and which also extends beyond an edge of said catalyst layer on said cathode substrate closest to said anode gas space inlet side.**

4,755,440

ELECTROCHEMICAL CELL

Emanuel Peled, Even Yehuda; Ester Elster, Kfar-Saba; Josef Kimel, Petach-Tikva, and Mordechai Brand, Tel Aviv, all of Israel, assignors to Ramot University For Applied Research and Industrial Development Ltd., Tel Aviv, Israel

Filed Feb. 2, 1987, Ser. No. [illegible]

Claims priority, application Israel, Feb. 4, 1986, 77786

Int. Cl.⁴ H01M 10/36

U.S. Cl. 429—101 14 Claims

1. An electrochemical cell of the type having a liquid cathode, an inert current collector, and an alkaline metal anode, made of calcium, magnesium, barium or strontium, or dischargeable alloys of any of these essentially free of alkali metals, wherein the liquid cathode comprises a soluble salt of barium or strontium

4,755,441

FIBER STRUCTURE-ELECTRODE FRAMEWORK OF METALLIZED SYNTHETIC RESINOUS FIBERS WITH REINFORCED EDGE AND WELDED-ON CURRENT-CONDUCTING LUG

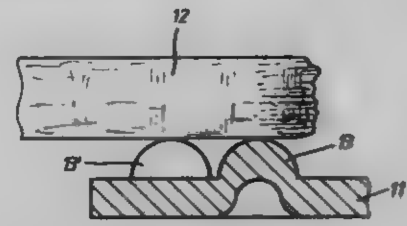
Otwin Imhof, Nuertingen; Claus Schneider, Fellbach, and Willi Kitzhoefer, Petershorn, all of Fed. Rep. of Germany, assignors to Deutsche Automobilgesellschaft mbH, Hannover, Fed. Rep. of Germany

Filed Sep. 23, 1987, Ser. No. 100,365

Claims priority, application Fed. Rep. of Germany, Sep. 24, 1986, 3632351

Int. Cl.⁴ H01M 2/26

U.S. Cl. 429—211 4 Claims



1. A fiber structure-electrode framework of metallized plastic fibers with reinforced edge and welded-on current-conducting lug means, in which the fiber structure-electrode framework has a thickness of about 1 to about 10 mm., the current-conducting lug means being provided with at least one step on the side abutting at the fiber framework whose height corresponds altogether to about 0.3 to 0.8 times the lug thickness and whose depth amounts altogether to about 3 to 10 mm., the edge of the fiber structure-electrode framework being located within an area on the current-conducting lug means whose limits lie at a distance of about twice the lug thickness on both sides of the step edge, and the fiber structure-electrode framework which is compressed within the stepped area, attaining its full thickness approximately continuously up to the end of the step.

4,755,442

PATTERN DEVELOPING PROCESS AND APPARATUS THEREFOR

Hiroyuki Hasebe; Masayuki Suzuki, both of Yokohama; Yasuo Matsuoka, Kawasaki; Takashi Tsuchiya, Kitakami, and Kinya Usuda, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 11, 1986, Ser. No. 895,675

Claims priority, application Japan, Aug. 19, 1985, 60-181388; Aug. 19, 1985, 60-181389

Int. Cl.⁴ G03C *5/00*

U.S. Cl. 430—30 19 Claims

1. A pattern developing process comprising:

a resist-forming step of forming a resist film on a surface of a conductor;

a pattern-forming step of forming a predetermined pattern on said resist film by an electron beam;

a developing step of developing the pattern, such that said conductor on which the resist pattern is formed is dipped in a developer containing an organic solvent and an ionized material to selectively remove the resist film;

a detecting step in which an electrode exhibiting a stable potential in the developer is dipped in the developer to detect a change in electrochemical parameter between said electrode and said conductor, based on a change in capacitance between said conductor and said developer; and

an end-determining step for determining the end point of said developing step, with reference to a reference time between the time preceding a changing point of the electrochemical parameter by a predetermined period and the time following the changing point of the parameter by another predetermined period.

4,755,443

PHOTORECEPTOR FOR ELECTROPHOTOGRAPHY COMPRISING A PHTHALOCYANINE AND ORGANIC AMINE COMPOUND

Yasuo Suzuki; Yoshihide Fujimaki, and Hiroyuki Nomori, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Oct. 28, 1986, Ser. No. 924,349

Claims priority, application Japan, Oct. 31, 1985, 60-242882

Int. Cl.⁴ G03G *5/06, 5/14*

U.S. Cl. 430—58 18 Claims

1. A photoreceptor for electrophotography comprising a substrate, at least one carrier generating substance and at least one carrier transporting substance, both of which substances are incorporated in at least one layer provided on said substrate, characterised in that at least one of said carrier generating substance is a metal phthalocyanine compound or a metal-free phthalocyanine compound, and the layer containing said at least one carrier generating substance comprises an organic amine compound in a quantity of 2.0 to 0.001 times as much as said carrier generating substance in terms of mole number.

4,755,444

ELECTROPHOTOGRAPHIC PHOTORECEPTOR

Kenichi Karakida, and Shigeru Yagi, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Kanagawa, Japan

Filed Dec. 23, 1986, Ser. No. 945,541

Claims priority, application Japan, Dec. 25, 1985, 60-290869; Dec. 25, 1985, 60-290870

Int. Cl.⁴ G03G *5/14*

U.S. Cl. 430—66 13 Claims

1. An electrographic photoreceptor, comprising:

a support;

a photosensitive layer formed on said support; and

an amorphous carbon surface layer formed by decomposition of a mixed gas comprising a hydrogen-containing gas and a second gas selected from the group consisting of hydrocarbon compounds and halogenated hydrocarbons on said photosensitive layer, said amorphous carbon surface layer comprising carbon atoms and hydrogen atoms in a hydrogen to carbon atomic ratio no greater than 1

4,755,445

DRY PRESENSITIZED PLATE FOR USE IN MAKING A LITHOGRAPHIC PRINTING PLATE

Akira Hasegawa, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Feb. 9, 1987, Ser. No. 12,348

Claims priority, application Japan, Feb. 13, 1986, 61-29727

Int. Cl.⁴ G03C *1/68, 1/72*

U.S. Cl. 430—138 17 Claims

1. A dry presensitized plate for use in making a lithographic printing plate requiring no dampening water during printing which comprises a support having provided thereon, in order, a photohardenable light-sensitive layer of microcapsules comprised of one polymerizable component selected from the group consisting of a photopolymerizable monomer and a light-sensitive resin and a silicone rubber layer

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4,755,446

PHOTOSENSITIVE COMPOSITIONS CONTAINING MICROCAPSULES CONCENTRATED IN SURFACE LAYER

Dalen E. Keys; William J. Nebe, both of Wilmington, Del., and Thomas R. Fields, Kennett Square, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 12, 1987, Ser. No. 6,420

Int. Cl.⁴ G03C *1/68;* **G03F** *7/16*

U.S. Cl. 430—138 14 Claims

1. A storage stable photopolymerizable element wound in a roll comprising a supported photopolymerizable composition which contains all components needed for photopolymerization of said composition wherein the composition contains microcapsules on its surface or concentrated near its surface within the composition on a side of the photopolymerizable composition which faces away from the support or which faces toward the support whereby the microcapsules contain a material which is a liquid or a precursor to a liquid whereby said liquid or precursor has the ability to influence the interfacial properties of the photopolymerizable composition or a photopolymerized composition resulting from said photopolymerizable composition and another material and wherein the support comprises a strippable flexible film.

4,755,447

ENHANCED RADIOGRAPHIC IMAGE CAPTURE USING A WIDE DYNAMIC RANGE FILM

Earle L. Kitts, Jr., Hendersonville, N.C., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 657,252, Oct. 3, 1984, abandoned. This application Oct. 3, 1986, Ser. No. 915,131

Int. Cl.⁴ G03C *1/02, 5/17*

U.S. Cl. 430—139 5 Claims

1. In a process wherein a photosensitive silver halide film is

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imagewise exposed to light emanating from an X-ray intensifying screen to form a latent image thereon, followed by developing said image and subsequently enhancing said developed image by analog or digital computer processing to provide additional contrast in selected regions of said image, the improvement comprising employing as the photosensitive silver halide film a wide-dynamic-range film with exposure latitude of ≧10:1 and within a useful density range of 0.3 to 3.0 having an essentially constant gradient of no greater than 2.0 and the maximum gradient never exceeds the minimum gradient by more than a factor of two within said density range and a ΔLog E between 1.0 and 3.0 for the essentially constant gradient, whereby visibility of the radiographic detail over a wide exposure latitude is obtained.

4,755,448

SILVER HALIDE PHOTOGRAPHIC MATERIAL AND METHOD FOR FORMING SUPER HIGH CONTRAST NEGATIVE IMAGES THEREWITH

Kazunobu Katoh, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 4, 1986, Ser. No. 904,062

Claims priority, application Japan, Sep. 4, 1985, 60-195655

Int. Cl.⁴ G03C *1/34, 5/26*

U.S. Cl. 430—266 12 Claims

1. A negative type silver halide photographic material comprising a support, at least one silver halide emulsion layer on the support, and at least one light-insensitive hydrophilic colloid layer on the support, wherein said emulsion layer or light-insensitive hydrophilic colloid layer contains a hydrazine derivative, and further contains a tertiary amine salt of an acid polymer.

4,755,449

SILVER HALIDE PHOTOGRAPHIC MATERIAL AND METHOD FOR FORMING SUPER HIGH CONTRAST NEGATIVE IMAGES THEREWITH

Nobuaki Inoue, and Senzo Sasaoka, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 4, 1986, Ser. No. [illegible]

Claims priority, application Japan, Sep. 4, 1985, 60-195657

Int. Cl.⁴ G03C *1/06, 5/24*

U.S. Cl. 430—267 14 Claims

1. A negative type silver halide photographic material comprising a support and at least one silver halide emulsion layer on the support, wherein said emulsion layer comprises silver halide grains comprising a core of silver halide containing silver iodide and a shell covering the core, said shell consisting essentially of silver bromide, silver chloride, or silver chlorobromide and having a thickness of from 0.01 to 0.08 μm, and the emulsion layer or a hydrophilic colloid layer other than the emulsion layer of said photographic material contains a hydrazine derivative.

4,755,450

SPECTRAL SENSITIZING DYES IN PHOTOPOLYMERIZABLE SYSTEMS

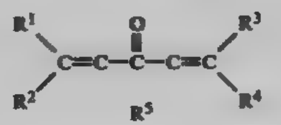
James F. Sanders, St. Joseph Township, St. Croix County, Wis., and David R. Olson, Marine on St. Croix, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 22, 1986, Ser. No. 854,851

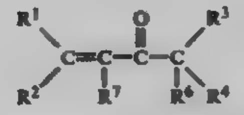
Int. Cl.⁴ G03C *1/68*

U.S. Cl. 430—285 10 Claims

1. A photopolymerizable system comprising
10–60% by weight of an ethylenically unsaturated polyfunctional monomer,
10–60% by weight of an ethylenically unsaturated polyfunctional polymer,
10–60% by weight of a polymeric binder, and
0.1–20% by weight of a photoinitiator system comprising a tertiary amino aryl ketone dye having at least one carboxylic acid group thereon and a free radical photoinitiator selected from the group consisting of photoacid generating free radical photoinitiator and a biimidazole and
wherein said dye has the formula:



or



wherein
R¹, R², R³, R⁴ and R⁶ are independently selected from the group consisting of hydrogen, alkyl, aryl, and 5- or 6-membered heterocyclic rings containing on C, N, S, Se, or O ring atoms,
R⁵ represents the atoms necessary to complete a 5-, 6-, 7-membered heterocyclic ring having only C, N, S, Se, and O atoms therein, with no more than 2 ring atoms being other than C, and,
at least one of R¹, R², R³, R⁴, R⁵, R⁶ and R⁷ has a carboxylic and group thereon and at least one of R¹, R², R³, R⁴ and R⁶ is an aromatic group having a dialkylamino, diarylamino, or alkylaryl amino substituent.

5. The photopolymerizable system of claim 1 wherein said ethylenically unsaturated monomer and polymer (1) comprise polyacryloyl and polymethacryloyl monomer and (2) polyacryloyl and polymethylacryloyl polymers and sufficient colorant to provide a transmission optical density of at least 0.3 at a dry coating weight of 25 mg/m².

4,755,451

DEVELOPER FOR COLOR PROOFING FILM WITH AN ALKYL GLYCOL DERIVATIVE OF CYCLOHEXANE

Kim-Chi T. Le, and John G. Schommer, both of San Diego, Calif., assignors to Sage Technology, Waltham, Mass.

Filed Aug. 28, 1986, Ser. No. 901,312

Int. Cl.⁴ G03C *5/00*

U.S. Cl. 430—331 14 Claims

1. A developer composition for lithographic color proofing film which consists essentially of, in weight percent:

a glycol acetate	5–25%;
an alkyl glycol derivative of cyclohexane	10–30%;
a surfactant	0.2–8.0%;
as a cosolvent,	
a glycol	3–10%, or
an alcohol	5–15%, or
an ester	5–20%, and
water	balance

4,755,452

COLOR PHOTOGRAPHIC RECORDING MATERIAL AND A PROCESS FOR THE PRODUCTION OF PHOTOGRAPHIC IMAGES

Werner Liebe, Leverkusen, and Hans Vetter, Cologne, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Filed Jan. 20, 1987, Ser. No. 4,643

Claims priority, application Fed. Rep. of Germany, Feb. 1, [illegible]

Int. Cl.⁴ G03C *1/06, 7/26, 7/38*

U.S. Cl. 430—372 12 Claims

1. Colour photographic recording material containing at least one light-sensitive silver halide emulsion layer and at least one magenta colour coupler associated with this layer, characterised in that at least one diffusion-resistant indole derivative and at least one diffusion-resistant hydroquinone derivative are contained in at least one layer S which contains no magenta colour coupler.

4,755,453

METHOD FOR RECOVERING SILVER FROM WASTE SOLUTIONS CONTAINING THIOSULFATE COMPOUNDS

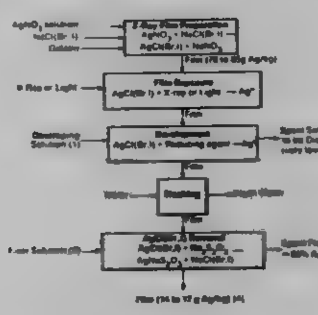
Wasyl Kunda, and Thomas H. Etsell, both of Edmonton, Canada, assignors to The Governors of the University of Alberta, Alberta, Canada

Filed Sep. 24, 1986, Ser. No. 910,719

Claims priority, application Canada, Jan. 11, 1986, 511317

Int. Cl.⁴ C22B *11/00*; G03C *5/24*

U.S. Cl. 430—398 14 Claims



1. In a process for recovering silver from a standard spent photographic treatment solution comprising mixing nitric acid with a quantity of said treatment solution to precipitate from said solution silver sulfide and converting said precipitate to silver, the improvement comprising mixing in accordance with a ratio of or its equivalent less than two parts of concentrated nitric acid solution of approximately 15.7M with more than ten parts of said standard treatment solution to precipitate out of said solution a solid residue which includes silver sulfide and sulfur.

4,755,454

ELEMENT HAVING A SILVER HALIDE PHOTOGRAPHIC LAYER ON A POLYOLEFIN COATED PAPER BASE

Yasuo Aotsuka, and Seichiro Yamamoto, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 778,044, Sep. 20, 1985, abandoned, which is a continuation-in-part of Ser. No. 593,757, Mar. 27, 1984, abandoned. This application Dec. 12, 1986, Ser. No. [illegible]

Claims priority, application Japan, Mar. 29, 1983, 59-54741

Int. Cl.⁴ G03C *1/86*

U.S. Cl. 430—538 12 Claims

1. A color photographic element comprising:
(1) a support comprising a paper substrate with a polyolefin film provided on both sides thereof;
(2) a hydrophilic colloid layer containing titanium dioxide as a white pigment on one side of the support (1); and
(3) a light-sensitive silver halide emulsion layer on the hydrophilic colloid layer (2), wherein the titanium dioxide content of the hydrophilic colloid layer (2) is at least about 68% by weight

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4,755,455

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Yasuo Iwasa, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

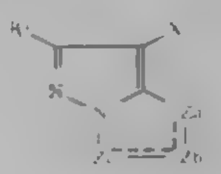
Filed Jul. 18, 1986, Ser. No. 886,863

Claims priority, application Japan, Jul. 19, 1985, 60-159969

Int. Cl.⁴ G03C *7/38, 1/02, 7/26*

U.S. Cl. 430—558 11 Claims

1. A silver halide color photographic material comprising at least one silver halide emulsion layer on a support, wherein said emulsion layer contains silver halide grains comprising silver bromide or silver bromochloride, about 50% or more of the total projected area of said silver halide grains comprise tabular grains, and said emulsion layer further contains at least one pyrazoloazole-type magenta coupler represented by general formula (I):



(I)

wherein
R¹ represents a hydrogen atom or a substituent,
X represents a hydrogen atom or a group capable of being removed by a coupling reaction with an oxidized form of an aromatic primary amine developing agent;
Zb and Zc each represents a methine or substituted methine residue or =N— or —NH;
Za represents =N— or —NH—;
one of the Za-Zb bond and the Zb-Zc bond is double bond, and the other is a single bond; and if the Zb-Zc bond is a carbon-carbon double bond, this may form a part of an aromatic ring;
R¹ or X may form a dimer or a polymer; and
if Zb or Zc is a substituted methine residue, this may form a dimer or a polymer, wherein the tabular silver halide grains have a grain diameter of 0.2–5.0 μm, a grain thickness of about 0.3 μm or less and an average aspect ratio of 5 to 8, and wherein when the tabular silver halide grains in the emulsion layer comprise silver bromochloride they contain about 40 to about 95 mol % of silver bromide

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4,755,456

METHOD FOR PREPARING SILVER IODOBROMIDE EMULSIONS HAVING HIGH ASPECT RATIO

Tadao Sugimoto, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 29, 1986, Ser. No. 947,129

Claims priority, application Japan, Dec. 26, 1985, 60-294553

Int. Cl.⁴ G03C *1/02*

U.S. Cl. 430—569 7 Claims

1. A method for preparing a light-sensitive silver iodobromide emulsion having a high aspect ratio, the emulsion containing a dispersion medium and silver iodobromide grains, with grains having a grain size of not less than 0.5 μm, a thickness of not more than 0.3 μm, and an average aspect ratio of not less than 5 constituting at least 50% of the total project area of the emulsion grains, comprising:

(a) introducing a silver salt, and a bromide salt or a bromide salt and iodide salt into a reactor in which at least part of the dispersion medium has been introduced;

(b) controlling the iodide ion concentration indicated by pI in the reactor prior to the introduction of at least the silver salt, and the bromide salt or the bromide salt and iodide salt within the range represented by the equation (I) as shown below:

$$\frac{1.50}{pBr} + 1.20 \leq pI \leq \frac{\text{[illegible]}}{pBr} + 1.33 \qquad (I)$$

wherein pI and pBr indicate the logarithmic values of reciprocals of concentrations of dissolved iodide ions and bromide ion, respectively, and

(c) maintaining the pBr at not less than 0.8 after the introduction of the silver salt, and bromide salt or the bromide salt and iodide salt.

4,755,457

METHOD FOR DETECTING HTLV-III NEUTRALIZING ANTIBODIES IN SERA

Marjorie Robert-Guroff, 6116 Tilden La., Rockville, Md. 20852, and Robert C. Gallo, 8513 Thornden Ter., Bethesda, Md. 20817

Continuation of Ser. No. [illegible], Feb. 6, 1985, abandoned. This application Apr. 20, 1987, Ser. No. 40,748

Int. Cl.⁴ G01N *33/569, 33/564;* C12Q *1/70*

U.S. Cl. 435—5 1 Claim

1. A method for determining, in samples of human sera, the activity of antibodies which neutralize the infectivity of Human T-Cell Leukemia Virus Type III particles, which method comprises

(1) heat inactivating and sterilizing samples of human sera to be tested;

(2) contacting said samples with suspensions of Human T-Cell Leukemia Virus Type III particles, sufficient to infect between 50% to 80% of cells of the Human T-Cell Leukemia Virus Type III permissive cell line H9 (ATCC CRL 8543) in vitro by 3 days post-infection, for a time and under conditions sufficient to permit binding of antibodies in said samples to said Human T-Cell Leukemia Virus Type III particles;

(3) incubating said samples and suspensions in the presence of H9 (ATCC CRL 8543) cells in vitro for a time and under conditions sufficient to permit infection of said H9 cells by said Human T-Cell Leukemia Virus Type III particles;

(4) washing said incubated H9 cells to remove extracellular virus;

(5) contacting said washed cells with an antibody which specifically binds to Human T-Cell Leukemia Virus Type III for a time and under conditions sufficient to permit binding of said antibody to said washed cells to determine the number of Human T-Cell Leukemia Virus Type III infected H9 cells, wherein a decrease in the number of Human T-Cell Leukemia Virus Type III infected H9 cells, as compared to the number of cells infected with Human T-Cell Leukemia Virus Type III after pre-incubation of said Human T-Cell Leukemia Virus Type III with sera negative for Human T-Cell Leukemia Virus Type III neutralizing antibodies, is indicative of the presence of antibodies which neutralize Human T-Cell Leukemia Virus Type III in the tested samples.

4,755,458

COMPOSITION AND METHOD FOR THE DETECTION OF THE PRESENCE OF A POLYNUCLEOTIDE SEQUENCE OF INTEREST

Elazar Rabbani, and Dean L. Engelhardt, both of New York, N.Y., assignors to Enzo Biochem, Inc., New York, N.Y.

Filed Aug. 30, 1984, Ser. No. 646,171

Int. Cl.⁴ C12Q *1/70, 1/68;* C08G *77/04*

U.S. Cl. 435—5 22 Claims

12. In a method for the detection of a polynucleotide sequence of interest in a sample of polynucleotide sequences comprising:

contacting under hybridizing conditions said sample of polynucleotide sequences with a composition comprising at least one first and at least one second polynucleotide and detecting said polynucleotide of interest by means of said first detectable marker, the improvements comprising:

(a) said first and second sequences are labeled with a first detectable marker and are either present as separate molecules from which said first polynucleotide sequence has not been isolated or are covalently linked and further characterized in that said first sequence is capable of hybridizing to said sequence of interest and said second sequence is not capable of hybridizing to said sequence of interest and is not capable of hybridizing to said first sequence; and

(b) said sample is further contacted, prior to detecting, with a composition comprising at least one-third polynucleotide sequence that is unlabeled or is labeled with a second detectable marker and characterized in that said third sequence is not capable of hybridizing to said first sequence and is not capable of hybridizing to said sequence of interest, and further characterized in that said third sequence is:

(i) capable of hybridizing to said second sequence, such that by hybridizing to said second sequence said third sequence blocks hybridization between said second sequence and complementary non-target sequences that may be contained in the sample and decreases the likelihood that said second sequence will generate a false positive signal upon detection of said first detectable marker; or

(ii) substantially identical to said second sequence, such that by means of hybridizing to said complementary non-target sequences that may be contained in the sample said third sequence blocks hybridization between said second sequence and said complementary non-target sequences and decreases the likelihood that said second sequence will generate a false positive signal upon detection of said first detectable marker.

4,755,459

DETECTION OF GONOCOCCAL INFECTIONS USING MONOCLONAL ANTIBODIES

Terry W. Pearson, Victoria, and Malcolm B. Perry, Ottawa, both of Canada, assignors to Canadian Patents and Development Limited, Ottawa, Canada, by said Malcolm B. Perry

Filed Jun. 10, 1985, Ser. No. 742,853

Claims priority, application Canada, Jun. 14, 1984, 456571

Int. Cl.⁴ G01N *53/00, 33/53;* C12Q *1/04;* C12R *1/36*

U.S. Cl. 435—7 7 Claims

1. A method of detecting the presence of *N. gonorrhoeae* comprising:

(a) providing a sample suspected of containing said *N. gonorrhoeae*, and

(b) contacting said sample with at least one monoclonal antibody to *N. gonorrhoeae* R-core lipopolysaccharide antigens, the antibody having no cross-reactivity with *N. meningitidis*,

(c) detecting the binding of the monoclonal antibody of step (b) to *N. gonorrhoeae* wherein said binding is an indication of the presence of *N. gonorrhoeae*.

4,755,460

BOVINE ANTIGEN GLYCOPROTEIN, RELATED ANTIBODY, AND USE IN DETECTION OF PREGNANCY IN CATTLE

Eileen F. Bostwick, St. Paul, and Alan G. Hunter, Roseville, both of Minn., assignors to The Regents of the Univ. of Minnesota, Minneapolis, Minn.

Filed Jul. 6, 1984, Ser. No. 628,571

Int. Cl.⁴ G01N *33/53, 33/577;* C07K *3/00, 15/00*

U.S. Cl. 435—7 10 Claims

1. An isolated, substantially pure bovine pregnancy antigen for detecting and determining pregnancy in cattle consisting of a glycoprotein obtained from a pregnant bovine animal which

(a) binds nicotinamide-adenine dinucleotide,

(b) has immunoreactive portions with a molecular weight of about 158,000 to 263,000,

(c) contains at least the carbohydrates N-Ac-glucosamine, galactose, and L-fucose, and either D-mannose or D-glucose or both,

(d) has an isoelectric point range of 4.5 to 5.5,

(e) gives a blue stain with Coomassie Blue, and

(f) is not cross-reactive when antibodies directed to said glycoprotein are contacted with hemoglobin, albumin, bovine luteinizing hormone, IgG, fibrinogen, fetuin, or alpha fetal protein.

3. A monoclonal antibody produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with the bovine pregnancy antigen of claim 1, with which said antibody reacts.

4,755,461

TABLETED BLOOD PLASMA MICROCONCENTRATED THROMBOPLASTIN COAGULATION REAGENT

Daniel E. Lawson, Ambler; Eugene J. Mezza, Doylestown, and Michael Sokol, Melrose Park, all of Pa., assignors to Bio/-Data Corporation, Hatboro, Pa.

Filed Apr. 17, 1986, Ser. No. 853,084

Int. Cl.⁴ C12Q *1/56*

U.S. Cl. 435—13 21 Claims

1. An improved tableted microconcentrated blood plasma coagulation reagent which comprises a combination of a first tablet containing thromboplastin, a buffer, a binder, and a lubricant; and a second tablet containing a calcium salt selected from the group consisting of calcium lactate, calcium gluconate, and calcium chloride.

4,755,462

ANALYTICAL PROCESS AND AGENTS FOR THE DETECTION OF ESTEROLYTIC AND/OR PROTEOLYTIC ENZYMES

Eugen Schnabel, Wuppertal, Fed. Rep. of Germany, assignor to Miles Inc., Elkhart, Ind.

Filed Mar. 11, 1985, Ser. No. 710,625

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1984, [illegible]

Int. Cl.⁴ C12Q *1/44, 1/38*

U.S. Cl. 435—19 10 Claims

1. Agent for the detection of esterolytic or proteolytic enzymes, consisting essentially of (a) an amino acid ester or peptide ester of a phenol, as the chromogenic enzyme substrate, and (b) a substance which acclerates the enzymatic cleavage of the amino acid ester or peptide ester bond of component (a), wherein said substance is an accelerating amount of a polyamino acid with a molecular weight of between 1,000 and 2,000,000.

4,755,463

PROCESS FOR PREPARING STEROIDS

Charles J. Sih, Madison, Wis., assignor to Wisconsin Alumni Research Foundation, Madison, Wis.

Continuation of Ser. No. 552,517, Nov. 16, 1983, abandoned, which is a continuation-in-part of Ser. No. 420,982, Sep. 21, 1982, Pat. No. 4,444,884, which is a continuation-in-part of Ser. No. 382,011, May 25, 1982, abandoned. This application Feb. 19, 1986, Ser. No. [illegible]

Int. Cl.⁴ C12P *33/16;* C12N *1/38*

U.S. Cl. 435—55 12 Claims

1. An improved process for preparing steroids from phytosterols characterized by the presence of branched chains at C-24, which comprises selectively cleaving the 17-side chains of said phytosterols by exposing them to the fermentative action of enzymes elaborated by a microorganism of the genus Nocardia, Mycobacterium, Arthrobacter or Corynebacterium characterized by the ability to cleave the 17-side chain of phytosterols and to respond to the HCO_3— ion during the cleavage process, in the presence of a one carbon unit chemical compound selected from the group consisting of $NaHCO_3$, NH_4CO_3, CO_2 and H_2CO_3 and which can be converted by the microorganism to the bicarbonate ion or CO_2, sufficient in amount to enhance the cleavage of the 17-side chain of the phytosterols but insufficient to adversely affect the elaboration of enzymes by the microorganism and recovering the desired steroid.

4,755,464

PREPARATION OF PLASMID DNA AND PRODUCTS THEREOF

Donald G. MacPhee, Macleod; Anthony J. Radford, Northcote, and Derryl C. Reanney, Briar Hill, all of Australia, assignors to Genetech Australia Limited, North Melbourne, Australia

Filed Apr. 23, 1984, Ser. No. 603,239

Claims priority, application Australia, Apr. 21, 1983, PF8994

Int. Cl.⁴ C12P *21/00;* C12N *15/00, 1/00, 1/20*

U.S. Cl. 435—68 9 Claims

1. A method for preparing bacterial cells enriched in plasmid DNA and expression products thereof, substantially free of undegraded chromosomal DNA which method comprises:

(a) providing a repair and recombination deficient bacterial strain;

(b) exposing the strain to a total dose of about 0.01–0.25 kGy of gamma irradiation such that non-dividing cells are produced which can sustain the multiplication of plasmids and which comprise chromosomal DNA which has been substantially degraded; and

(c) recovering the non-dividing bacterial cells so produced

5. A method for synthesizing expression products of plasmid DNA which method comprises;

(a) providing

(i) a DNA fragment encoding desirable characteristics, and

(ii) an organism containing a plasmid,

(b) cloning the DNA fragment into the plasmid,

(c) transforming or transfecting a repair and recombination deficient bacterial strain with the recombinant plasmid,

(d) exposing the bacterial strain containing the plasmid to a total dose of about 0.01–0.25 kGy of gamma irradiation such that non-dividing bacterial cells are produced which can sustain the multiplication of plasmids and which comprise chromosomal DNA which has been substantially degraded, and

(e) maintaining the processed bacterial cells in a suitable nutrient medium.

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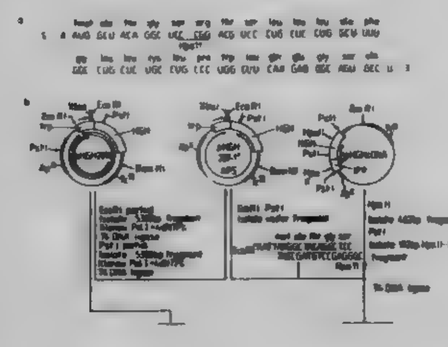
4,755,465
SECRETION OF CORRECTLY PROCESSED HUMAN GROWTH HORMONE IN *E. COLI* AND PSEUDOMONAS

Gregory L. Gray, San Francisco, and Herbert L. Heyneker, Burlingame, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.
Filed Apr. 25, 1983, Ser. No. 488,232
Int. Cl.⁴ C12P *21/02;* C12N *15/00*
U.S. Cl. 435—70 2 Claims



1. A method comprising (a) transforming a procaryotic cell with an expression plasmid encoding a pre protein for human growth hormone containing a signal sequence, culturing the transformed cell to provide a prokaryotic recombinant host cell culture comprising mature human growth hormone, which growth hormone is free of mature human growth hormone having an extraneous N-terminal methionine, and (b) isolating the mature human growth hormone from a cell extract of the host cell culture of step (a).

4,755,466
PROCESS FOR PRODUCING L-PHENYLALANINE

Kenzo Yokozeki; Norimasa Onishi, both of Kawasaki; Hideo Kano, Yokosuka, and Yoshitera Hirose, Kamakura, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
Filed Feb. 1, 1985, Ser. No. 697,376
Claims priority, application Japan, Feb. 3, 1984, 59-18069; Jul. 11, 1984, 59-143214; Oct. 15, 1984, 59-215062
Int. Cl.⁴ C12N *1/14, 1/16;* C12P *13/22;* C12R *1/645*
U.S. Cl. 435—108 16 Claims

1. A process for producing L-phenylalanine, which comprises:

reacting cinnamic acid and an ammonia generator in an aqueous medium in the presence of a microorganism belonging to the genus Geotrichum, Moniliella, Syncephalastrum, Endomyces, Aspergillus, Saccharomycopis, Eurotium, Glomerella, Pellicularia or Conatobotyrum, and

collecting L-phenylalanine from said aqueous medium.

4,755,467
METHOD FOR THE PRODUCTION OF SORBITOL AND GLUCONATE

Robert K. Scopes, Hurstbridge; Peter L. Rogers, Northwood, and Donald A. Leigh, Randwick, all of Australia, assignors to Unisearch Limited, Kensington, Australia
Filed Nov. 26, 1985, Ser. No. 802,178
Claims priority, application Australia, Jan. 3, 1985, PH0843
Int. Cl.⁴ C12P *17/06, 7/58*
U.S. Cl. 435—125 11 Claims

1. A method for the production of sorbitol and gluconolactone comprising reacting glucose and fructose in the presence of a strain of *Zymomonas mobilis* which contains the enzyme complex glucose/fructose transhydrogenase including the tightly bound co-factor(s), or a cell-free extract of such a strain of *Zymomonas mobilis,* containing the said enzyme complex, in which the strain of *Zymomonas mobilis,* the cell-free extract or the reaction conditions are such that the further reaction of gluconolactone is substantially prevented.

4,755,468
INOCULA OF LOW WATER ACTIVITY WITH IMPROVED RESISTANCE TO TEMPERATURE AND REHYDRATION, AND PREPARATION THEREOF

Gerard Jung, Monthery, and Jacques Mugnier, Paris, both of France, assignors to Rhone-Poulenc S.A., Paris, France
Continuation of Ser. No. 452,633, Dec. 23, 1982. This application Sep. 19, 1985, Ser. No. 777,863
Claims priority, application France, Dec. 29, 1981, 81 24403
Int. Cl.⁴ C12N *11/10, 1/20;* A01C *11/06;* C05F *11/08*
U.S. Cl. 435—178 21 Claims

1. A method of preparing an inoculum having a long storage life, and improved resistance to temperature and rehydration, comprising preparing a culture medium containing microorganisms of the genus Rhizobium and at least one carbohydrate in a polymer gel and then exhaustively drying the gel by contacting the gel with a dry, hot air stream, under conditions compatible with the survival of the microorganisms to lower the water activity of the resulting inoculum to and maintaining the water activity at less than 0.1.

4,755,469
OIL TRACING METHOD

William E. Showalter, Seal Beach; Elihu Goldish, Lakewood, and Ronald J. Lukasiewicz, Irvine, all of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.
Filed Sep. 27, 1982, Ser. No. 423,698
Int. Cl.⁴ G01N *33/28*
U.S. Cl. 436—27 25 Claims

21. A method for tracing a first oleaginous and petroliferous substance, comprising:

(a) incorporating into a first oleaginous and petroliferous substance an oil-soluble or oil-dispersible tracer comprising a metal salt of a substituted or unsubstituted acid containing about 5 to 35 carbon atoms, selected from the group consisting of carboxylic acids of the alkanoic series, carboxylic acids of the alkenoic series, polyunsaturated aliphatic monocarboxylic acids and naphthenic acids, said metal selected from the group consisting of Group VIB metals, Group VIIB metals, and lanthanum series rare earth metals;

(b) utilizing the first oleaginous and petroliferous substance, into which the tracer has been incorporated, in a manner so that control of the substance is lost;

(c) obtaining a second oleaginous and petroliferous substance, suspected to be or to contain a portion of the first oleaginous and petroliferous substance; and

(d) analyzing the second oleaginous and petroliferous substance to determine the presence of the tracer.

4,755,470
PROCESS AND AN APPARATUS FOR MEASURING THE RELATIVE EQUILIBRIUM MOISTURE CONTENT

Jörg M. Söder, Cologne, and Salomon Hamed, Leichlingen, both of Fed. Rep. of Germany, assignors to Agfa Gevaert Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany
Filed Dec. 12, 1985, Ser. No. 807,964
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1984, 3447214
Int. Cl.⁴ G01N *27/28, 27/42*
U.S. Cl. 436—39 7 Claims

1. A process for measuring the relative equilibrium moisture content of a sample in a sealed tube

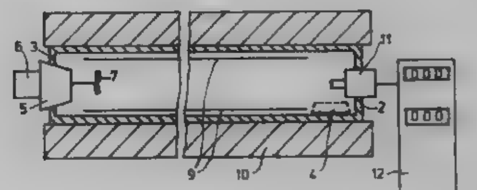
comprising the steps of

introducing a sample into a tubular member having at least two orifices, a first orifice being sealed by a removable element positionable in said first orifice from within the tubular member, said sample being inserted through a second of said orifices,

hermetically sealing said second orifice by a stopper

then placing the tubular member into a thermostat,

next forcing the removable element inward of the tubular member from the first orifice by the insertion into the first orifice of a moisture sensor,

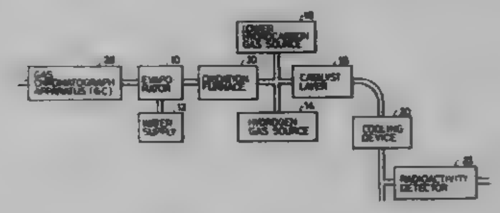


resealing the first orifice with the moisture sensor so constructed and arranged that the sensor and the sample are not contiguous,

and at a selected temperature determined by said thermostat measuring the equilibrium moisture content of the sample.

4,755,471
TRITIUM RADIOACTIVITY MEASURING SYSTEM

Tomo Saito; Kazuo Watanabe; Yumiko Nishiyama, all of Kanagawa, and Naotake Morikawa, Tokyo, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan
Division of Ser. No. 454,530, Dec. 30, 1982. This application Sep. 5, 1986, Ser. No. 904,155
Claims priority, application Japan, Apr. 30, 1981, 56-64195
Int. Cl.⁴ G01T *1/16*
U.S. Cl. 436—57 10 Claims



1. A method of quantitatively measuring the radioactivity of a tritium-containing sample, comprising:

mixing a gaseous tritium-containing sample together with a gaseous combination comprising hydrogen, water and at least one lower hydrocarbon gas;

forwarding said mixture into a catalyst chamber where said mixture is contacted with an isotope exchange reaction promoting catalyst;

causing, by means of said catalyst, an isotope exchange reaction between the tritium of said sample and hydrogen atoms contained in said gaseous combination;

separating tritium gas and tritium-containing lower hydrocarbon gas formed as a result of isotope exchange, from water formed during or remaining after said isotope exchange; and

measuring the radioactivity of said tritium gas and tritium-containing lower hydrocarbon gas by means of a proportional counter.

4,755,472
STABLE COMPOSITION FOR THE DETERMINATION OF PEROXIDATIVELY ACTIVE SUBSTANCES

Ibrahim A. Ismail, South Bend, and Teresa Yip, Elkhart, both of Ind., assignors to Miles Inc., Elkhart, Ind.
Filed Jan. 16, 1986, Ser. No. 819,282
Int. Cl.⁴ G01N *21/78, 33/52*
U.S. Cl. 436—66 14 Claims

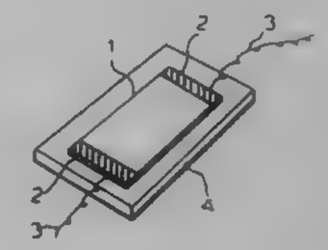
1. A stable test composition for use in determining the presence of peroxidatively active substances in a sample of fluid wherein the composition is typically stable under normal ambient conditions and will not adversely affect the usefulness of a peroxidase and potassium iodide based substance for glucose determination if such a peroxidase and potassium iodide based substance and said test composition are supported on the same diagnostic test strip means or are otherwise stored or used in the presence of one another, said test composition comprising

(a) 1,4-diisopropylbenzene dihydroperoxide; and

(b) a benzidine indicator in a molar ratio (dihydroperoxide indicator) in the range of about 0.9 to about 3.

4,755,473
METHOD OF DETECTING CARBON DIOXIDE GAS

Tadashi Nishino, Tokyo, and Masayuki Nagai, Kanagawa, both of Japan, assignors to Sekisui Kaseihin Kogyo Kabushiki Kaisha, Nara, Japan
Filed May 16, 1986, Ser. No. 863,891
Claims priority, application Japan, May 16, 1985, 60-102666; Apr. 15, 1986, 61-85126
Int. Cl.⁴ G01N *27/12*
U.S. Cl. 436—133 4 Claims



1. A method for the detection of carbon dioxide gas comprising bringing carbon dioxide containing gas into contact with a detection element comprising a hydroxyapatite according to the formula (I):

$$M_{10}(ZO_4)_6(OH)_2 \quad (I)$$

wherein M is an element selected from the group consisting of Ca, Ba, Sr, Pb and Cd, and Z is an element selected from the group consisting of P, As, and V; and measuring the change in the electrical resistance of said detection element.

4,755,474
METHOD OF ASSEMBLING AN OPTOCOUPLER

Curtis D. Moyer, Phoenix, Ariz., assignor to Motorola Inc., Schaumburg, Ill.
Filed Dec. 22, 1986, Ser. No. 944,125
Int. Cl.⁴ H01L *31/12*
U.S. Cl. 437—3 14 Claims

1. A method of manufacturing optocoupler devices comprising the steps of:

forming a plurality of semiconductor photodetector chips on a wafer;

applying a dielectric layer to predetermined portions of said wafer;

forming individual semiconductor light emitting chips;

mounting one of said light emitting chips at a predetermined location on said dielectric layer above each of said photo-

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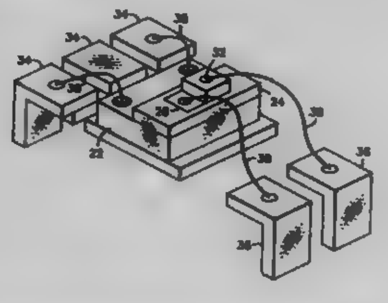
detector chips to form photodetector chip light emitting chip pairs; and



dicing said wafer into individual pairs, each of which comprises a photodetector chip and a light emitting chip.

4,755,475

METHOD OF MANUFACTURING PHOTOVOLTAIC DEVICE

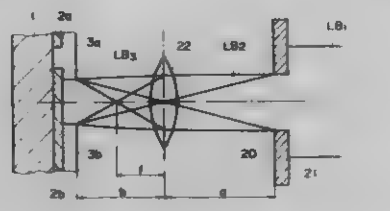
Seiichi Kiyama, Neyagawa; Yasuaki Yamamoto, Higashi-Osaka; Hideki Imai, Hirakata, and Yutaka Hirono, Neyagawa, all of Japan, assignors to Sanyo Electric Co., Ltd., Japan

Filed Feb. 17, 1987, Ser. No. 15,691

Claims priority, application Japan, Feb. 18, 1986, 61-34800; Feb. 18, 1986, [illegible]; Jan. [illegible], 1987, [illegible]

Int. Cl.⁴ H01L *31/18*

U.S. Cl. 437—4 42 Claims



1. A method of manufacturing a photovoltaic device, in which a plurality of photoelectric conversion elements each comprising a first electrode layer, a semiconductive layer, and a second electrode layer are laminatedly arranged on an insulative surface of a substrate and said photoelectric conversion elements are electrically connected in series with each other, comprising the steps of:

dividedly arranging the first electrode layer on the surface of the substrate,

coating the semiconductive layer on the surface of the substrate including the upper surface of the first electrode layer,

dividing the semiconductive layer element by irradiating energy-beams having an energy-distribution which is substantially uniform over the entire irradiated zone of the semiconductive layer,

coating the second electrode layer on the semiconductive layer, and

dividing the second electrode layer in order to define each element.

4,755,476

PROCESS FOR THE PRODUCTION OF SELF-ADJUSTED BIPOLAR TRANSISTOR STRUCTURES HAVING A REDUCED EXTRINSIC BASE RESISTANCE

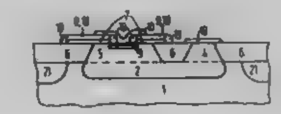
Willi R. Böhm, Unterhaching, and Hans-Christian Schaber, Graefelfing, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

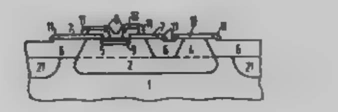
Filed Nov. 17, 1986, Ser. No. 931,802

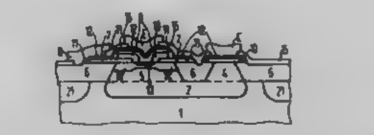
Claims priority, application Fed. Rep. of Germany, Dec. 17, 1985, 3544573

Int. Cl.⁴ H01L *21/265*

U.S. Cl. 437—31 4 Claims







1. A process for the production of bipolar transistors having buried collector zones and deeply extending collector terminals, comprising the sequence of the following process steps:

(a) producing buried n^+-doped zones in a p-doped substrate by implantation of n-doping ions,

(b) depositing an n^--doped epitaxial layer in a layer thickness of 0.5 to 2.0 microns,

(c) implanting boron ions to produce channel-stop zones,

(d) applying a double layer consisting of silicon oxide and silicon nitride and structuring of the silicon nitride layer for the succeeding local oxidation,

(e) producing a field oxide to separate the active transistor zones in the substrate by local oxidation using the silicon nitride structure as an oxidation mask,

(f) removing the nitride/oxide mask,

(g) producing the collector zones by implantation of phosphorus atoms,

(h) applying a first high-temperature treatment,

(i) depositing a p^+-conducting first layer of polysilicon onto the entire surface,

(j) depositing an insulating layer onto the entire surface,

(k) structuring the two last-named layers with vertical sidewalls until the substrate is exposed, using a dry etching procedure in order to define a base zone,

(l) providing an active base zone by boron ion implantation,

(m) depositing a second insulating layer and etching back this layer in order to produce sidewall insulations at the p^+-polysilicon edges,

(n) depositing a second polysilicon layer onto the entire surface,

(o) structuring of said second polysilicon layer so that the emitter and collector terminals are formed on the substrate,

(p) applying an anisotropic etching process wherein the insulating layer which covers the p^+-conducting first polysilicon layer surface is removed until the p^+-conducting first polysilicon layer surface is exposed,

(q) depositing a further insulating layer on the entire surface to provide a good edge cover of the structures of the p^+-conducting first polysilicon layer and the structures of the second polysilicon layer,

(r) anisotropically etching of said further insulating layer whereby insulating strips are formed at the sidewalls of the first polysilicon layer and the second polysilicon layer and whereby silicon surfaces of the first polysilicon layer and the second polysilicon layer are exposed,

(s) implanting arsenic ions in the emitter and collector zones of said second polysilicon layer,

(t) selectively depositing and forming a metal layer or a silicide layer on the exposed silicon surfaces,

(u) applying a second high-temperature step such that the surfaces coated with metal or silicide are converted into a stable silicide layer and the dopants diffuse out of said first polysilicon layer structure and the second polysilicon layer structure into the silicon substrate, and

(v) producing an intermediate layer which serves as an insulating oxide, and opening contact holes to the active transistor terminals consisting of the doped polysilicon structures.

4,755,477

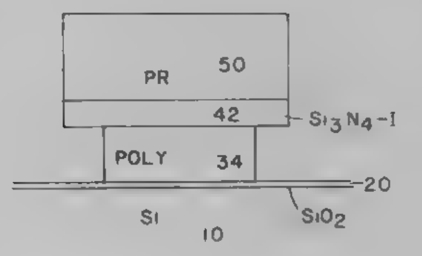
OVERHANG ISOLATION TECHNOLOGY

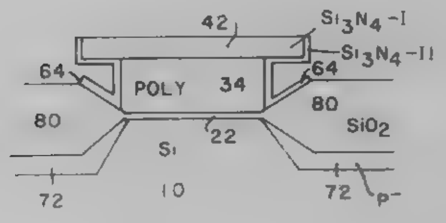
Fung-Ching Chao, Tainan Shih, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Mar. 24, 1987, Ser. No. 29,621

Int. Cl.⁴ H01L *21/467, 21/473, 21/475, 21/76*

U.S. Cl. 437—36 14 Claims





1. A process for forming isolation regions on a semiconductor substrate, which comprises:

a. anisotropically etching a laminate comprising (i) a silicon semiconductor substrate having thereon a silicon dioxide stress release layer, (ii) a polysilicon layer on said stress release layer, (iii) a first silicon nitride layer on said polysilicon layer, and (iv) a photo-resist masking active regions, so as to remove from said laminate the unmasked first layer of silicon nitride and the unmasked polysilicon layer completely;

b. isotropically etching the resultant structure to partially undercut the vertical portions of the polysilicon under the first silicon nitride layer so as to form an overhang of said first silicon nitride layer over said polysilicon layer;

c. stripping the photo-resist mask;

d. etching the stress release layer to completely remove the portion thereof not covered by the polysilicon layer;

e. depositing a second silicon nitride layer over the surface of the resulting structure;

f. anisotropically etching the second layer of silicon nitride to completely remove the portion thereof not covered by the overhang and expose the surface of the semiconductor substrate;

g. oxidizing the exposed semiconductor substrate so as to form a field oxide region; and

h. removing the residual first and second layers of silicon nitride, polysilicon, and stress release layers

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4,755,478

METHOD OF FORMING METAL-STRAPPED POLYSILICON GATE ELECTRODE FOR FET DEVICE

John R. Abernathey, Essex; John E. Cronin, Milton, and Jerome B. Lasky, Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 13, 1987, Ser. No. 84,719

Int. Cl.⁴ H01L *21/425*

U.S. Cl. 437—41 16 Claims

1. A process for forming a planarized, metal-strapped polysilicon gate FET, comprising the steps of:

defining a gate stack on an exposed surface of a semiconductor substrate, said gate stack including a gate mask disposed on top of a patterned polysilicon layer and a dielectric structure disposed between said patterned polysilicon layer and said semiconductor substrate;

defining first and second diffusion regions in said substrate having first and second silicide electrodes disposed thereon, said first and second diffusion regions being self-aligned to said gate stack and forming source and

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drain electrodes of said FET, said gate mask preventing silicide formation over said polysilicon layer;
depositing an insulating layer on said substrate, said insulating layer having a thickness substantially equal to that of said gate stack;
planarizing said insulating layer so as to expose an upper surface of said gate mask;
removing said gate mask to define an aperture in said insulating layer that exposes said polysilicon layer; and
depositing a low sheet resistance conductive material on said substrate to at least partially fill said aperture in said insulating layer so as to form a gate electrode of said FET that is relatively co-planar with said planarized insulating layer.

4,755,479
MANUFACTURING METHOD OF INSULATED GATE FIELD EFFECT TRANSISTOR USING REFLOWABLE SIDEWALL SPACERS

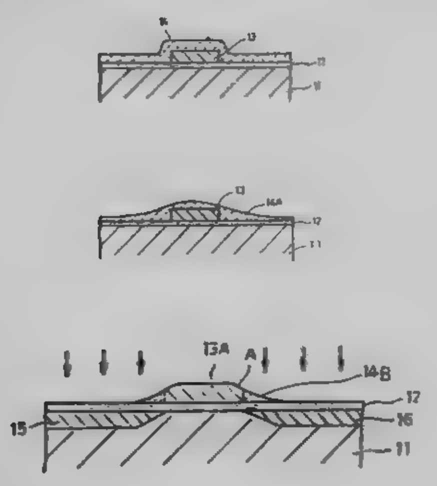
Takao Miura, Tokyo, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Feb. 4, 1987, Ser. No. 10,667

Claims priority, application Japan, Feb. 17, 1986, 61-033237; Feb. 17, 1986, 61-033236

Int. Cl.⁴ H01L *21/223, 21/265*

U.S. Cl. 437—44 5 Claims



1. A method of manufacturing MIS FET, said method comprising the steps of:
(a) forming a gate insulating film and a gate electrode on a silicon substrate;
(b) depositing an insulating material on said substrate and said gate electrode;
(c) reflowing said insulating material;
(d) etching said reflowed insulating material until the surface of said gate electrode and substrate for source/drain regions are exposed, thereby making a gradually rising side wall of said reflowed insulating material remain on both sides of the gate electrode; and
(e) implanting impurity ions into said substrate to form source/drain regions of said MIS FET using said gate electrode and said side walls as a mask, whereby a doping zone having a slanted profile which becomes gradually shallower under an edge of said gate electrode is formed.

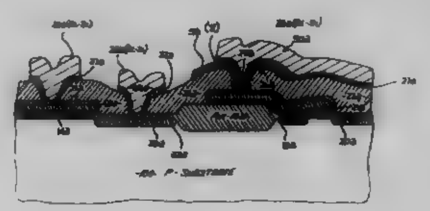
4,755,480
METHOD OF MAKING A SILICON NITRIDE RESISTOR USING PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION

Leopoldo D. Yau, Portland, Oreg.; Shih-ou Chen, Fremont, Calif., and Yih S. Lin, Beaverton, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 825,314, Feb. 3, 1986, abandoned. This application Nov. 12, 1986, Ser. No. 930,148

Int. Cl.⁴ H01C *7/10;* H01L *29/04*

U.S. Cl. 437—47 3 Claims



1. A process for fabricating a silicon-rich silicon nitride integrated circuit resistor comprising the steps of:
growing a gate-oxide layer on a substrate;
removing a portion of said gate-oxide layer to expose said substrate;
forming a polysilicon layer on said gate-oxide and said portion of exposed substrate;
doping said polysilicon layer by phosphorus diffusion wherein a buried contact region is formed in said portion of exposed substrate;
forming a layer of tungsten-silicon on said polysilicon layer;
growing an oxide layer on said tungsten-silicon layer;
forming an insulative layer on said oxide layer;
opening a window in said insulative layer and said oxide, wherein said opening extends to said tungsten-silicon layer;
forming a film of silicon-rich silicon nitride in said window, said silicon-rich silicon nitride film being deposited in said window using a plasma enhanced chemical vapor deposition technique at approximately 500 degrees C., said silicon-rich silicon nitride film contacting said tungstensilicon layer;
annealing said silicon-rich silicon nitride film at temperatures above 600 degrees C. wherein said annealing temperature and cycle times determine resistivity of said film;
forming a barrier layer comprised of titanium nitride on said annealed silicon-rich silicon nitride film;
forming a second conductive layer on said barrier layer, said second conductive layer having a titanium layer and an aluminum-silicon layer;
whereby a resistor element is fabricated between two conductors in an integrated circuit.

4,755,481
METHOD OF MAKING A SILICON-ON-INSULATOR TRANSISTOR

Lorenzo Faraone, Belle Mead, N.J., assignor to General Electric Company, Schenectady, N.Y.

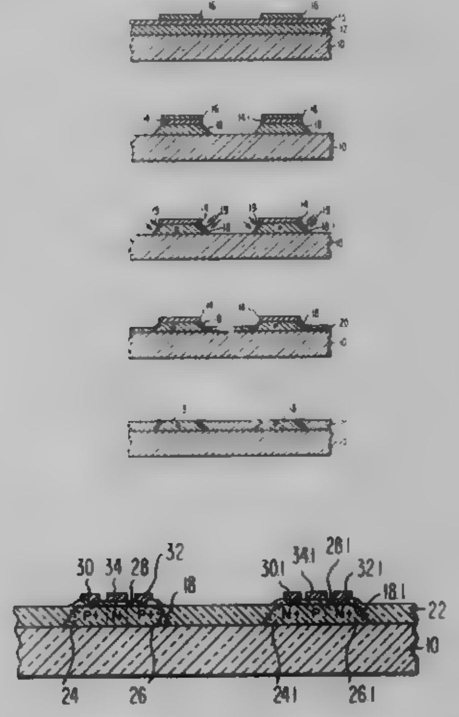
Filed May 15, 1986, Ser. No. 863,432

Int. Cl.⁴ H01L *21/38*

U.S. Cl. 437—62 18 Claims

1. A method of forming a semiconductor device comprising the steps of:
forming at least one island of semiconductor material on a surface of an insulating material;
applying a masking layer to the top of said at least one island;

forming intrinsic epitaxial silicon on the areas surrounding said at least one island by selective epitaxial growth; and



oxidizing said intrinsic epitaxial silicon to form silicon dioxide regions which surround said at least one island.

4,755,482
MAKING SEMICONDUCTOR DEVICE ON INSULATING SUBSTRATE BY FORMING CONDUCTIVE LAYERS ON BOTH MAJOR SURFACES

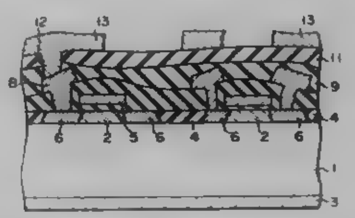
Yoshihide Nagakubo, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 29, 1987, Ser. No. 8,352

Claims priority, application Japan, Feb. 19, 1986, 61-32697

Int. Cl.⁴ H01L *21/441*

U.S. Cl. 437—84 22 Claims



1. A method for manufacturing a semiconductor device, comprising the steps of:
(1) forming a first conductive layer on a first major surface of an insulating substrate;
(2) forming a second conductive layer on a second major surface of the insulating substrate;
(3) forming, subsequent to the formation of said second conductive layer, elements in said first conductive layer; and
(4) forming an insulating interlayer, for insulation between interconnect layers, by means of a plasma CVD method, and forming contact holes, for achieving connection between the interconnect layers, by means of a reactive ion etching method.

4,755,483
METHOD FOR PRODUCING SEMICONDUCTOR DEVICE WITH P-TYPE AMORPHOUS SILICON CARBIDE SEMICONDUCTOR FILM FORMED BY PHOTO-CHEMICAL VAPOR DEPOSITION

Hisao Haku, Neyagawa; Yukio Nakashima, Hirakata; Tsugufumi Matsuoka, Neyagawa, and Kaneo Watanabe, Yawata, all of Japan, assignors to Sanyo Electric Co., Ltd., Japan

Filed Jul. 21, 1986, Ser. No. 888,474

Claims priority, application Japan, Jul. 30, 1985, 60-168709; Aug. 20, 1985, 60-183349

Int. Cl.⁴ H01L *21/205*

U.S. Cl. 437—100 6 Claims

1. In a method for producing a semiconductor device by forming a p-type amorphous silicon carbide film according to a photo-chemical vapor deposition method in which components obtained by decomposing source material gases are deposited on a substrate to form the semiconductor film, the improvement comprising the steps of
irradiating the substrate with a low pressure mercury lamp in the presence of a mixture of a higher silane and at least one of trimethyl boron and triethyl boron as source gasses, under a reduced pressure substantially below on atmosphere, and
simultaneously doping boron and adding carbide while forming the amorphous silicon carbide film on the substrate.

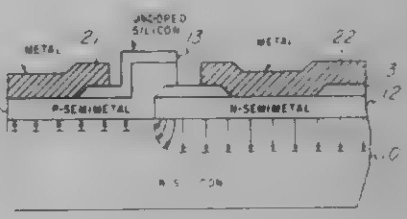
4,755,484
METHOD OF MAKING A SEMIMETAL SEMICONDUCTOR CONTACT

Patrick A. Curran, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 19, 1986, Ser. No. 876,322

Int. Cl.⁴ H01L *31/06, 21/324*

U.S. Cl. 437—106 5 Claims



1. A method for forming a semiconductor contact system that provides electrical contact to a semiconductor region with control of the boundary recombination velocity in order to optimize semiconductor transport phenomena, comprising:

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epitaxially growing monocrystalline silicon in an ultra high vacuum by molecular beam evaporation onto a substrate;

forming a thin, doped mirocrystalline film on the resulting substrate by molecular beam deposition, said film comprising a hole-gas semimetal of acceptor atoms and oxygen doped polycrystalline semiconductor material, and an electron-gas semimetal of donor atoms and oxygen doped polycrystalline semiconductor material;

said thin film being formed by concurrently conducting a low energy dopant implantation to set the chemostatic potential of the substrate, and increasing the dopant implantation dose and commencing low energy oxygen implantation at a desired monocrystalline termination point, to implant oxygen several atomic layers below the monocrystalline growth front to preserve the lattice periodicity of the substrate, whereby the monocrystalline lattice phases into the semimetal.

4,755,485

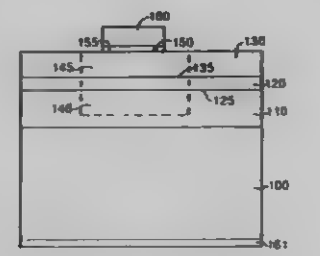
METHOD OF MAKING LIGHT-EMITTING DIODES

Ming-Jong Tsai, San Jose, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 868,161, May 27, 1986, Pat. No. 4,719,497, which is a continuation of Ser. No. 620,978, Jun. 15, 1985, abandoned. This application Sep. 18, 1987, Ser. No. 98,258

Int. Cl.⁴ H01L *21/383*

U.S. Cl. 437—126 **9 Claims**



1. A method of impeding light generation in a region of an active layer of semiconductor material between and defining heterojunctions with base and window layers with band gaps wider than the band gap of said active layer, said window layer being of the same conductivity type as said active layer, said base layer being of the conductivity type opposite to that of said active layer, said method comprising the step of:

diffusing a dopant of the same conductivity type as said active layer through said region and into said base layer so that when light is generated in said active layer, light generation is impeded in the intersection of said dopant region and said active region.

4,755,486

METHOD OF PRODUCING A DEFINED ARSENIC DOPING IN SILICON SEMICONDUCTOR SUBSTRATES

Helmuth Treichel, Augsburg, and Frank S. Becker, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

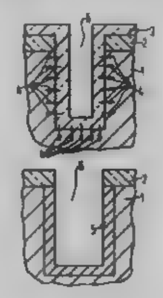
Filed Oct. 15, 1987, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1986, [illegible]

Int. Cl.⁴ H01L *21/385*

U.S. Cl. 437—164 **11 Claims**

1. A method of producing a defined arsenic doping in the sidewalls and floors of trenches etched in semiconductor substrates, wherein an arseno-silicate glass layer is deposited into these trenches and used as a diffusion source, the glass layer being removed after the diffusion, comprising the step of depositing the arseno-silicate glass layer in the trench by thermal decomposition from the vapor phase of tetraethylortho silicate ($Si(OC_2H_5)_4$) and triethylarsenate ($AsO(OC_2H_5)_3$).



4,755,487

METHOD FOR MAKING BIPOLAR TRANSISTORS USING RAPID THERMAL ANNEALING

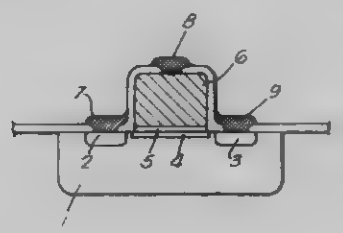
Peter D. Scovell; Roger L. Baker, both of Chelmsford, and David W. McNeil, Harlow, all of Great Britain, assignors to STC PLC, London, England

Filed Sep. 8, 1986, Ser. No. 904,547

Claims priority, application United Kingdom, Sep. 21, 1985, 8523369

Int. Cl.⁴ H01L *21/324*

U.S. Cl. 437—247 **1 Claim**



1. In a method of making the emitter region of a transistor, the steps of:

applying an interfacial oxide layer to a monocrystalline base region of the transistor;

depositing a polysilicon region over the interfacial oxide layer to form an extrinsic emitter region;

doping the polysilicon region with arsenic or phosphorus, wherein the oxide region acts as a barrier between the monocrystalline base region and the polysilicon to retard the diffusion of the emitter dopant into the monocrystalline region during a low-temperature diffusion drive-in, thus preventing excessive diffusion of the emitter dopant into the monocrystalline region; and

applying thermal treatment to the base region and the emitter region for a short period, on the order of a few seconds;

wherein the higher temperature used in said thermal treatment and the duration thereof, of the order of a few seconds, are such as to substantially eliminate the interfacial region; and

wherein the low temperature at which said diffusion drive-in is effected is 900° C. and the higher temperature used by said thermal treatment to eliminate the interfacial oxide region is 1100° C.

4,755,488

GLASS-CERAMIC ARTICLE

Yukihito Nagashima, Hyogo, Japan, assignor to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Filed Oct. 22, 1985, Ser. No. 791,158

Claims priority, application Japan, Oct. 23, 1984, 59-222341

Int. Cl.⁴ C03C *10/12, 10/14*

U.S. Cl. 501—4 **8 Claims**

1. A transparent glass-ceramic article of a unitary structure composed of an interior portion and an exterior portion, wherein the interior portion containing a crystalline phase consisting essentially of

(a) 55 to 75% by weight of SiO_2,
(b) 15 to 30% by weight Al_2O_3,
(c) 2 to 6% by weight of Li_2O,
(d) 1.2–5% by weight of Na_2O, and
(e) 2 to 9% by weight of $TiO_2+ZrO_2+P_2O_5$.

the total amount of the components (a) to (e) being 95 to 100 by weight, and wherein the exterior portion has the same glass composition as the interior portion but at least a part of Na^+ in the exterior portion is exchanged with K^+.

4,755,489

REINFORCED CALCIUM ALUMINOSILICATE GLASS-CERAMICS

Kenneth Chyung, Painted Post; Kishor P. Gadkaree; Ronald L. Stewart, both of Big Flats, and Mark P. Taylor, Painted Post, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Dec. 18, 1986, Ser. No. 943,072

The portion of the term of this patent subsequent to Oct. 7, 2003, has been disclaimed.

Int. Cl.⁴ C03C *10/06, 14/00;* **C04B** *35/56*

U.S. Cl. 501—8 **6 Claims**

1. An integral whisker-reinforced, internally-nucleated glass-ceramic matrix composite of essentially full density having a use temperature in excess of 1300° C. consisting essentially of 5–60% by weight deagglomerated SiC whiskers having a thickness less than 100 microns with a length-to-diameter ratio of at least 5 substantially uniformly distributed in a glass-ceramic essentially free of TiO_2 and consisting essentially, expressed in terms of weight percent on the oxide basis, of 16–20% CaO, 38.5–46% Al_2O_3, 35–42% SiO_2, 0.25–1.5% As_2O_3, and up to 10% total of at least one nucleating agent in the indicated proportion selected from the group consisting of 0.1–3% Cr_2O_3, 0.25–3% HfO_2, 2–5% MoO_3, 0.25–3% Nb_2O_5, 0.25–3% Ta_2O_5, 0.25–3% WO_3, and 1–10% ZrO_2, wherein Al_2O_3 is present in an amount which is at least 10 mole percent and up to 50 mole percent in excess of that present in stoichiometric triclinic anorthite, and wherein the predominant crystal phases in the glass-ceramic matrix are triclinic anorthite and mullite and/or α-Al_2O_3.

4,755,490

LOW FIRING TEMPERATURE CERAMIC MATERIALS

John F. DiLazzaro, Lake Oswego, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation of Ser. No. 853,515, Apr. 18, 1986, abandoned. This application Oct. 19, 1987, Ser. No. 110,627

Int. Cl.⁴ C03C *8/14;* **C04B** *35/10*

U.S. Cl. 501—17 **16 Claims**

1. A method of making low firing temperature sintered ceramic materials, comprising the steps of:

providing a mixture consisting essentially of 10–50 wt.% alumina, 0–30 wt.% fused silica, and 50–60 wt.% of a frit composed of about 4 wt.% CaO, about 12 wt.% MgO, about 13 wt.% Al_2O_3, about 29 wt.% B_2O_3, and about 42 wt.% SiO_2, and

sintering the mixture at a temperature not greater than 1000° C.

7. A method of making low firing temperature ceramic materials, comprising the steps of:

providing a mixture consisting essentially of 10–50 wt.% alumina, 0–30 wt.% fused silica, and 50–60 wt.% of a frit comprising about 4 wt.% CaO, about 12 wt.% MgO, about 13 wt.% Al_2O_3, about 29 wt % B_2O_3, and about 42 wt.% SiO_2; and

sintering the mixture.

4,755,491

MANUFACTURING METHOD FOR AN ALUMINUM NITRIDE SINTERED BODY

Sachihiko Miwa, Ichikawa, Japan, assignor to Onoda Cement Company, Ltd., Onoda, Japan

Filed Feb. 9, 1987, Ser. No. 12,651

Claims priority, application Japan, Feb. 10, 1986, 61-25794

Int. Cl.⁴ C04B *35/58*

U.S. Cl. 501—96 **3 Claims**

1. A method for manufacturing an aluminum nitride sintered body consisting essentially of:

admixing an additive selected from calcium cyanamide, calcium cyanide, and mixtures thereof with aluminum nitride powder;

forming the resulting mixture to obtain a formed body; and

sintering said formed body in a non-oxidizing atmosphere at normal pressure.

4,755,492

YTTRIUM OXIDE CERAMIC BODY

Charles D. Greskovich, Schenectady, and Chester R. O'Clair, Latham, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 6, 1986, Ser. No. 915,477

Int. Cl.⁴ C04B *35/50;* **B29D** *11/00*

U.S. Cl. 501—126 **24 Claims**

1. A process for producing a sintered yttrium oxide body which is at least optically translucent having an in-line spectral transmission greater than 1% taken at a wavelength of 590 nanometers on a thickness of 0.85 millimeter of said sintered body and having an average grain size ranging from about 5 microns to about 50 microns which consists essentially of producing an yttrium oxide powder having an average particle size of less than about 5 microns and being free of particles greater than about 5 microns and having a specific surface area ranging from about 4 square meters per gram to about 25 square meters per gram, forming said powder into a compact having a density of at least about 45% of the density for yttrium oxide, firing said compact at a temperature ranging from about 1625° C. to about 1900° C. for a time sufficient to produce said sintered body, and reducing the firing temperature at a rate which has no significant deleterious effect on said sintered body, said firing being carried out in an atomosphere of hydrogen, said hydrogen atmosphere containing at least a sufficient partial pressure of oxygen at least after said compact becomes a closed pore body to produce said optically translucent sintered body, said yttrium oxide powder being produced by providing an aqueous yttrium nitrate solution of at least about 0.1 mole of yttrium per liter of solution, providing an aqueous oxalic acid solution having a concentration of at least about 10% excess of that required for complete reaction with said yttrium nitrate, admixing said solutions thereby precipitat-

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ing yttrium oxalate hydrate, recovering said yttrium oxalate hydrate precipitate, washing said yttrium oxalate hydrate precipitate with water to substantially neutralize it, drying said yttrium oxalate hydrate precipitate to remove adsorbed water, comminuting the resulting yttrium oxalate hydrate powder in air at ambient temperature to produce a powder wherein the average agglomerate size is less than about 20 microns and which is free of agglomerates having a size greater than 20 microns, and thermally decomposing said yttrium oxalate hydrate at a temperature ranging from about 650° C. to about 1000° C. in air at ambient pressure to produce said yttrium oxide powder, said yttrium oxalate hydrate powder being comminuted sufficiently to produce on said thermal decomposition said yttrium oxide powder.

4,755,493
CERAMIC COMPOSITION FOR DIELECTRIC CERAMIC BODIES

Yukihisa Takeuchi, Nagoya, and Hideo Masumori, Anjo, both of Japan, assignors to NGK Insulators, Ltd., Aichi, Japan
Filed Oct. 6, 1986, Ser. No. 915,540
Claims priority, application Japan, Oct. 11, 1985, 60-227239
Int. Cl.⁴ C04B *35/46, 35/48, 35/49*
U.S. Cl. 501—134 11 Claims

1. A ceramic composition for forming by firing thereof dielectric ceramic bodies which have a major component consisting essentially of a compound having a perovskite structure or a complex perovskite structure, wherein the improvement comprises the addition of at least one inorganic peroxide selected from the group consisting of calcium peroxide, strontium peroxide and barium peroxide.

4,755,494
USE OF PECTIN OR PECTIN-LIKE MATERIAL IN WATER-BASED CERAMICS

George C. Ruben, Lebanon, N.H., assignor to Trustees of Dartmouth College, Hanover, N.H.
Continuation-in-part of Ser. No. 919,321, Oct. 14, 1986, abandoned. This application Feb. 12, 1987, Ser. No. 13,914
Int. Cl.⁴ C04B *33/04*
U.S. Cl. 501—140 6 Claims

3. A clay composition consisting essentially of a mixture of clay, mullite, grog and a pectin having from about 25 to about 4400 sugar units, the amount of pectic material ranging from 0.05 to about 5% by weight in relation to the clay.

4,755,495
PROCESS FOR ACTIVATION OF TITANIUM AND VANADIUM CATALYSTS USEFUL IN ETHYLENE POLYMERIZATION

Kevin J. Cann, Belle Mead, N.J.; David L. Miller, Chapel Hill, N.C., and Frederick J. Karol, Belle Mead, N.J., assignors to Union Carbide Corporation, Danbury, Conn.
Division of Ser. No. 833,140, Feb. 27, 1986, Pat. No. 4,670,526. This application Dec. 15, 1986, Ser. No. 941,363
Int. Cl.⁴ C08F *4/64*
U.S. Cl. 502—119 6 Claims

1. A complex consisting essentially of the reaction product of a divalent magnesium halide; a Lewis acid having the formula R_mAlX_n or R_mBX_n wherein R is an alkyl or aromatic radical, each radical having 1 to 12 carbon atoms and each R being alike or different; X is a halogen atom; m is an integer from 0 to 3; n is an integer from 0 to 3; and m+n equals 3; and an electron donor compound selected from the group consisting of alkyl esters of alkyl and aromatic carboxylic acids and alkyl and cycloalkyl ethers, each compound having 2 to 12 carbon atoms wherein the ratio of magnesium halide to Lewis acid is in the range of about 0.1 mole to about 4 moles of magnesium halide per mole of Lewis acid, said reaction product being formed on dissolution of the magnesium halide and Lewis acid in the electron donor compound.

3. The complex defined in claim 1 wherein the Lewis acid is selected from the group consisting of $AlCl_3$, $C_2H_5AlCl_2$, $(C_2H_5)_2AlCl$, $(C_2H_5)_3Al$, and BCl_3.

4,755,496
SUPPORTED TRANSITION METAL SULFIDE PROMOTED MOLYBDENUM OR TUNGSTEN SULFIDE CATALYSTS AND THEIR USES FOR HYDROPROCESSING

Teh C. Ho, Bridgewater; Russell R. Chianelli, Somerville; Allan J. Jacobson, Princeton, and Archie R. Young, Montclair, all of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.
Division of Ser. No. 687,533, Dec. 28, 1984, Pat. No. 4,690,145. This application Apr. 30, 1987, Ser. No. 44,347
The portion of the term of this patent subsequent to Jun. 17, 2003, has been disclaimed.
Int. Cl.⁴ B01J *31/22*
U.S. Cl. 502—165 22 Claims

1. As a composition of matter, a supported catalyst obtained by compositing a pre-selected quantity of support material with one or more precursor salts and heating said composite at elevated temperature of at least about 150° C., in the presence of sulfer and under oxygen-free conditions for a time sufficient to form said catalyst, wherein said precursor salt contains a thiometallate anion of Mo, W or mixture thereof and one or more divalent promoter metal cations which are chelated by at least one neutral, nitrogen-containing polydentate ligand, said divalent promoter metal cations being selected from the group consisting of cations of Ni, Co, Zn, Cu and mixture thereof.

4,755,497
PREPARATON OF COPPER ALUMINUM BORATE CATALYST AND OPTIONAL IMPROVEMENT OF THE CATALYST BY INCORPORATION WITH ACTIVE METALS

Richard E. De Simone, Lisle; Eric J. Moore, Naperville, and Bruce I. Rosen, Morton Grove, all of Ill., assignors to Amoco Corporation, Chicago, Ill.
Filed Oct. 28, 1986, Ser. No. 924,064
Int. Cl.⁴ B01J *21/02;* C01B *15/12*
U.S. Cl. 502—202 33 Claims

1. Solid state preparation of copper aluminum borate catalyst comprising: dry mixing solid reagents comprising suitable precursors of copper oxide (CuO), aluminum oxide (Al_2O_3) and boron oxide (B_2O_3) with a solid binder which aids compaction of the solid reagents, is essentially inert to said reagents, and burns away upon calcination, said dry mixing resulting in formation of a superficially dry copper aluminum borate precursor; compacting the dry precursor; and calcining the precursor at a sufficiently high temperature to form crystalline copper aluminum borate.

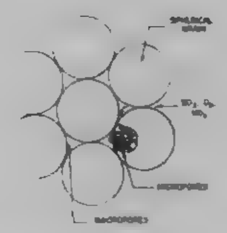
4,755,498
STEAM REFORMING CATALYST

Herbert J. Setzer, Ellington; Sam Karavolis, East Hampton, and John A. S. Bett, Hazardville, all of Conn., assignors to International Fuel Cells Corporation, South Windsor, Conn.
Continuation-in-part of Ser. No. 857,688, Apr. 30, 1986, abandoned. This application Sep. 16, 1987, Ser. No. 97,377
Int. Cl.⁴ B01J *21/04, 23/10, 23/58*
U.S. Cl. 502—303 12 Claims

1. A sulfur tolerant high activity steam reforming catalyst consistng essentially of platinum supported on a lanthanum stabilized alumina which maintains a high BET surface area at temperatures above 600° C. or a magnesium promoted lanthanum stabilized alumina substrate material.

4,755,499
SORBENT FOR REMOVING NITROGEN OXIDES, SULFUR OXIDES AND HYDROGEN SULFIDE FROM GAS STREAMS

Lewis G. Neal, Danville, Calif.; John L. Haslbeck, Paducah, Ky., and Hsiaopin Tseng, Kansas City, Mo., assignors to Noxso Corporation, Library, Pa.
Continuation of Ser. No. 659,996, Oct. 12, 1984, abandoned. This application Sep. 9, 1986, Ser. No. 905,138
Int. Cl.⁴ B01J *20/00*
U.S. Cl. 502—415 13 Claims



1. A regenerable attrition resistant sorbent useful in a fluidized bed for the removal of gaseous nitrogen oxides, sulfur oxides and hydrogen sulfide from waste gas streams, which sorbent comprises

(a) a gamma alumina substrate having a surface area between 100 m^2/g and 500 m^2/g and a pore volume between 0.4 and 0.8 cc/g, said gamma alumina substrate having a bimodal pore size distribution comprising micropores and macropores, said micropores having an average pore diameter d_1 in the range of between 30 and 400 Angstroms and said macropores having an average pore diameter d_2 in the range of between 80 and 3000 Angstroms, and

(b) an alkali metal component, said substrate impregnated with said alkali metal component and the amount of said alkali metal component being between 50 and 400 μg per m^2 of said substrate.

12. A regenerable attrition resistant sorbent useful in a fluidized bed for the removal of gaseous nitrogen oxides, sulfur oxides and hydrogen sulfide from waste gas streams, which sorbent comprises:

(a) a gamma alumina substrate having a surface area between 100 m^2/g and 500 m^2/g and a pore volume between 0.6 and 0.8 cc/g, and

(b) an alkali metal component, said substrate impregnated with said alkali metal component and the amount of said alkali metal component being between 150 and 250 μg per m^2 of said substrate.

4,755,500
MOLDED CATALYST FOR CATALYTIC GAS REACTIONS

Kazunobu Abe, and Toshikatsu Umaba, both of Sakai, Japan, assignors to Sakai Chemical Industry Co., Ltd., Osaka, Japan
Filed Dec. 24, 1986, Ser. No. 947,415
Claims priority, application Japan, Dec. 27, 1985, 60-296957
Int. Cl.⁴ B01J *32/00*
U.S. Cl. 502—439 1 Claim

1. A molded catalyst for fitting into a reactor vessel having an inlet and an outlet for a reactant gas, the catalyst having openings therethrough parallel to the direction of a reactant gas which is introduced into the reactor vessel from the inlet, the catalyst comprising: a wear-resistant front portion substantially facing the inlet of the reactor vessel. and a remaining portion, said remaining portion being so wear-susceptible as to have either:

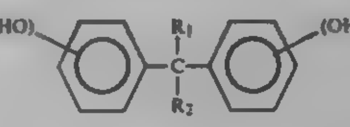
(a) a wearability of 2–10% in a shaking abrasion test wherein grinding particles having an average particle size of 1000 μm and a Mohs scale of 9 are placed in the openings of the catalyst in an amount of 50% by volume based on the total volume of the openings, and the catalyst is shaken for three hours with an amplitude of 77 mm and a frequency of 320 per minute; or

(b) a wearability of 7.5–35% in an air abrasion test wherein an air which contains silica particles having an average particle size of 40 μm in amounts of 70 g/m^3 is passed through in a reactor vessel including a rectangular parallelepipedic catalyst of 45 mm wide, 45 mm thick and 100 mm long so fitted thereinto that the catalyst extends longitudinally in the direction of the flow of the air for 30 min. at a superficial velocity of 40 m/sec. at the front portion of the catalyst.

4,755,501
COLOR DEVELOPING COMPOSITION FOR CARBONLESS PAPER COPYING SYSTEM

Yew C. Chang, Westlake Village, Calif., and Richard S. Lamar, Littleton, Colo., assignors to Amoco Corporation, Chicago, Ill.
Filed May 18, 1984, Ser. No. 612,044
Int. Cl.⁴ B41M *5/16, 5/22*
U.S. Cl. 503—207 12 Claims

1. A color developing CF sheet for pressure sensitive recording systems comprising a support coated with a coating composition comprising calcium carbonate and a monomeric bisphenol having a general formula:

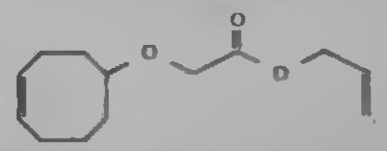


wherein N is 1, 2, 3, 4, or 5, and R_1 and R_2 are the same or different and are hydrogen, alkyl, substituted alkyl, amino or substituted amino, wherein weight ratio of bisphenol to calcium carbonate is about 2 to about 20 parts per 100 parts calcium carbonate and the calcium carbonate content of the coating is at least 30 dry weight percent.

4,755,502
ALLYL-4-CYCLOOCTENYL GLYCOLATE, ORGANOLEPTIC USES THEREOF, PROCESS FOR PREPARING SAME AND INTERMEDIATES USEFUL IN SAID PROCESS

Mark A. Sprecker, Sea Bright; William L. Schreiber, Jackson, and Robert P. Belko, Woodbridge, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 66,965, Jun. 29, 1987. This application Oct. 29, 1987, Ser. No. 114,426
Int. Cl.⁴ A61K *7/46;* C07C *69/74*
U.S. Cl. 512—8 5 Claims

1. A process for augmenting or enhancing the aroma of a perfume composition, a cologne or a perfumed article comprising the step of adding to said perfume composition, cologne or perfumed article, an aroma augmenting or enhancing quantity of the compound having the structure:



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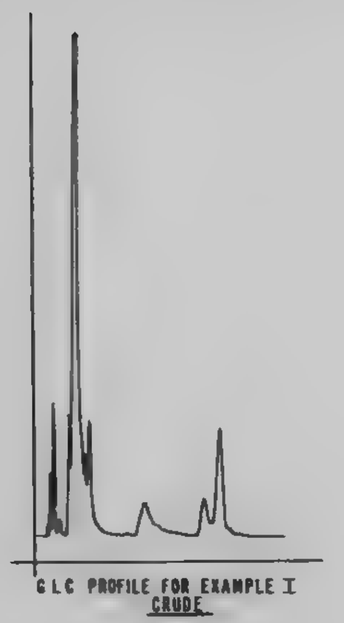


GLC PROFILE FOR EXAMPLE I CRUDE

4,755,503

FRAGRANCE COMPOSITIONS CONTAINING 2,4,6-TRIBROMO-3-METHYLANISOLE METHYLANISOLE

Joachim E. Freudewald, Basking Ridge; Kenneth L. Purzycki, Lake Parsippany, and Joseph A. Virgilio, Wayne, all of N.J., assignors to Givaudan Corporation, Clifton, N.J.

Filed Oct. 21, 1987, Ser. No. 111,897

Int. Cl.⁴ A61K *7/46*

U.S. Cl. 512—20 **2 Claims**

1. A fragrance composition comprising an olfactorily effective amount of substantially pure 2,4,6-tribromo-3-methylanisole and at least one other olfactive substance.

4,755,504

PHARMACEUTICAL COMPOSITION FROM TIENCHI

Yaguang Liu, 67-08 168th Street, Fresh Meadows, N.Y. 11365

Continuation-in-part of Ser. No. 783,665, Oct. 3, 1985, abandoned. This application Dec. 22, 1986, Ser. No. 944,357

Int. Cl.⁴ A61K *35/78*

U.S. Cl. 514—26 **16 Claims**

1. A composition pharmaceutically suitable for treatment of circulatory disease comprising: saponin 80–95.5 wt. %; and quercetin 0.5–20 wt. %.

4,755,505

5-[2-(DIALKYLAMINO)ALKYL]-4,5-DIHYDRO-4-(ARYL)-1-BENZAZOCINE-2,6(1H,3H)-DIONES AS ANTI-ARRHYTHMIC AGENTS

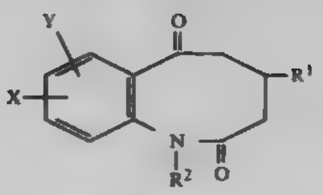
Michael W. Winkley, Malvern, and James L. Diebold, Newtown, both of Pa., assignors to American Home Products Corporation, New York, N.Y.

Filed Aug. 18, 1987, Ser. No. 86,754

Int. Cl.⁴ A61K *31/395;* C07D *225/06*

U.S. Cl. 514—183 **18 Claims**

1. A 4-aryl-benzazocine-2,6-dione of Formula I



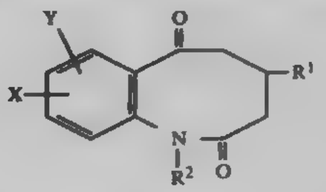
in which

R^1 is phenyl, naphthyl or phenyl or naphthyl substituted by one to three moieties selected from fluoro, chloro, bromo, and alkyl or alkoxy of 1 to 4 carbon atoms;

R^2 is $—R^3—NR^4R^5$, wherein R^3, R^4 and R^5 are, independently, straight or branched chain alkyl groups of 1 to 4 carbon atoms or R^4 and R^5 are concatenated to form a nitrogen ring having 3 to 8 carbon atoms; and

X and Y are, independently, hydrogen, alkyl or alkoxy of 1 to 4 carbon atoms, dialkylamino or dialkyl-carboxamido wherein each alkyl group has 1 to 4 carbon atoms, cyano, alkylacyl of 1 to 4 carbon atoms, fluoro, chloro, nitro, dialkylsulfonamido wherein each alkyl group has 1 to 4 carbon atoms, or alkylsulfonyl of 1 to 4 carbon atoms, os a pharmaceutically acceptable salt thereof.

10. A method of treating heart arrhythmia in mammals, including man, having a heart arrhythmia, comprising administering to such mammal in need thereof an amount effective to alleviate said arrhythmia of a compound of Formula I



in which

R^1 is phenyl, naphthyl or phenyl or naphthyl substituted by one to three moieties selected from fluoro, chloro, bromo, and alkyl or alkoxy of 1 to 4 carbon atoms;

R^2 is $—R^3—NR^4R^5$, wherein R^3, R^4 and R^5 are, independently, straight or branched chain alkyl groups of 1 to 4 carbon atoms or R^4 and R^5 are concatenated to form a nitrogen ring having 3 to 8 carbon atoms; and

X and Y are, independently, hydrogen, alkyl or alkoxy of 1 to 4 carbon atoms, dialkylamino or dialkyl-carboxamido wherein each alkyl group has 1 to 4 carbon atoms, cyano, alkylacyl of 1 to 4 carbon atoms, fluoro, chloro, nitro, dialkylsulfonamido wherein each alkyl group has 1 to 4 carbon atoms, or alkylsulfonyl of 1 to 4 carbon atoms, or a pharmaceutically acceptable salt thereof.

4,755,506

PHARMACEUTICAL COMPOSITIONS OF [(1,3,-DIOXO-1,3-PROPANEDIYL)DIIMINO]BISBENZOIC ACID DERIVATIVES AND THEIR USE

Toshio Satoh; Hitoshi Matsumoto; Hisao Kakegawa, all of Tokushima; Yoshiko Kato, Kobe; Juichi Riku, Uji; Junji Yoshinaga, Neyagawa, and Yoshifumi Kanamoto, Kashihara, all of Japan, assignors to Sawai Pharmaceutical Co., Ltd., Japan

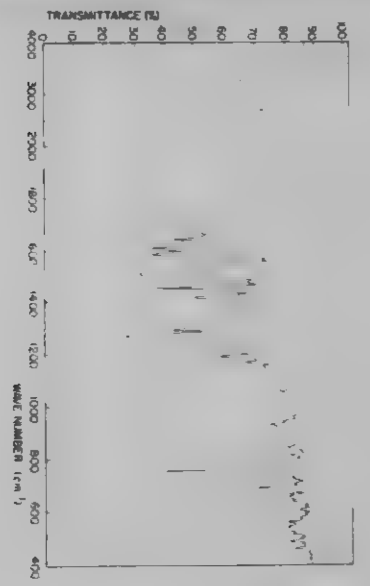
Division of Ser. No. 697,573, Feb. 1, 1985, Pat. No. 4,634,777. This application Sep. 19, 1986, Ser. No. 909,468

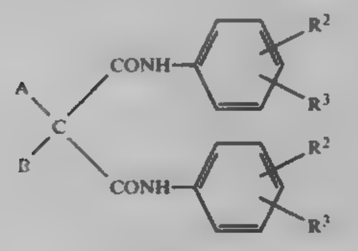
Claims priority, application Japan, Feb. 8, 1984, 59-22360; Aug. 13, 1984, 59-169702; Aug. 27, 1984, 59-179064; Sep. 17, 1984, [illegible]; Sep. 28, 1984, [illegible]

Int. Cl.⁴ A61K *31/38, 31/40, 31/19, 31/215*

U.S. Cl. 514—212 **5 Claims**

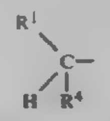
1. A pharmaceutical composition comprising a therapeutically effective amount of a compound of the general formula:





(I')

wherein one of A and B is a group (G) of the formula:



(G)

and the other is a group R^5

wherein R^1 is an aryl group or a substituted aryl group wherein the substituent is halogen, hydroxy, $C_{(1-6)}$ lower alkoxy, $C_{(1-6)}$ lower alkylenedioxy, halo $C_{(1-6)}$ lower alkyl, cyano, nitro, mono- or di-$C_{(1-6)}$ alkylamino or $C_{(1-6)}$ lower alkanoylamino; or a 5-membered or 6-membered $C_{(1-6)}$ alkyl substituted or unsubstituted heterocyclic group containing a heteroatom selected from oxygen, nitrogen and sulfur, or a condensed heterocyclic group consisting of a heterocycle as defined above and a benzene nucleus, and R^4 and R^5 are both hydrogen or together form a single chemical bond, R^2 and $R^{2'}$ are independently hydrogen, halogen, nitro, $C_{(1-6)}$ lower alkyl or $C_{(1-6)}$ lower alkoxy, and R^3 and $R^{3'}$ are independently carboxy or its functional derivative, with the proviso that

when one of A and B is the group (G) and the other is the group R^5 wherein R^4 and R^5 together form a single chemical bond, R^1 is unsubstituted aryl and R^2 and $R^{2'}$ are independently hydrogen or $C_{(1-6)}$ lower alkyl, then R^3 and $R^{3'}$ are independently carboxy or its functional derivative other than methyl ester,

in association with a pharmaceutically acceptable carrier, diluent or excipient.

5. A method for treating allergic disease in mammals which method comprises administering to a subject in need of such treatment a therapeutically effective amount of, or a pharmaceutical composition containing therapeutically effective amount of, the compound (I') as set forth in claim 1.

4,755,507

METHOD OF TREATING BENIGN PROSTATIC HYPERTROPHY

Jacob P. Hieble, Philadelphia, Pa., assignor to SmithKline Beckman Corporation, Philadelphia, Pa.

Continuation of Ser. No. 941,475, Dec. 15, 1986, abandoned. This application Oct. 27, 1987, Ser. No. 115,658

Int. Cl.⁴ A61K *31/55*

U.S. Cl. 514—213 **3 Claims**

1. A method of treating benign prostatic hypertrophy which comprises administering to a human subject an amount sufficient to relieve benign prostatic hypertrophy of 6-chloro-2,3,4,5-tetrahydro-3-methyl-1H-3 benzazepine or a nontoxic pharmaceutically acceptable salt thereof.

4,755,508

BENZODIAZEPINE ANALOGS AND USE AS ANTOGONISTS OF GASTRIN AND CHOLECYSTOKININ

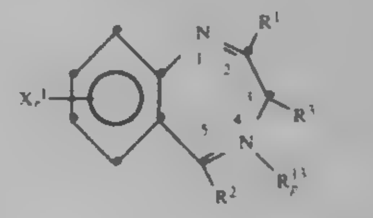
Mark G. Bock, Hatfield; Ben E. Evans, Lansdale, and Roger M. Freidinger, Hatfield, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 741,973, Jul. 10, 1985, abandoned, which is a continuation-in-part of Ser. No. 624,852, Jun. 26, 1984, abandoned. This application Feb. 27, 1987, Ser. No. 20,261

Int. Cl.⁴ A61K *31/55;* C07D *243/20, 243/16*

U.S. Cl. 514—221 **9 Claims**

1. A compound of Formula I:

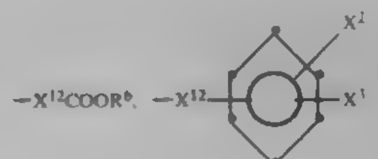


I

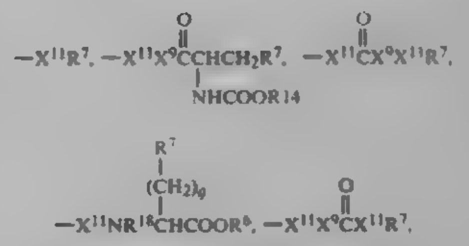
wherein

R^1 is $—NR^{16}R^{17}$;

R^2 is H, loweralkyl, substituted or unsubstituted phenyl (wherein the substituents are 1 or 2 of halo, loweralkyl, loweralkoxy, loweralkylthio, carboxyl, carboxyloweralkyl, nitro, $—CF_3$, or hydroxy), 2-, 3-, 4-pyridyl.



R^3 is



$$-X^{11}R^7,\ -X^{11}X^9\overset{O}{\overset{\|}{C}}\underset{\underset{NHCOOR14}{|}}{C}HCH_2R^7,\ -X^{11}\overset{O}{\overset{\|}{C}}X^9X^{11}R^7,$$

$$-X^{11}NR^{18}\overset{\substack{R^7\\|\\(CH_2)_9\\|}}{C}HCOOR^6,\ -X^{11}X^9\overset{O}{\overset{\|}{C}}X^{11}R^7,$$

$NH(CH2)_{2-3}—NHCOR7$, $NH(CH2)_{2-3}—NHR7$

VOL 1092 ISS 1 JL 5 1988 UMI

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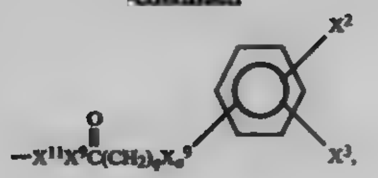
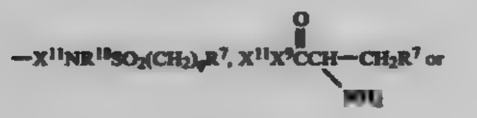
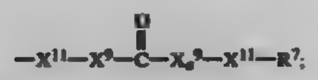




$$-X^{11}NR^{18}SO_2(CH_2)_qR^7,\ X^{11}X^9\overset{O}{\overset{\|}{C}}\underset{NH_2}{CH}-CH_2R^7 \text{ or}$$

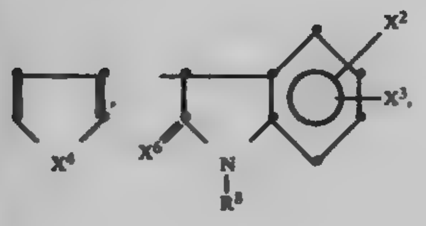


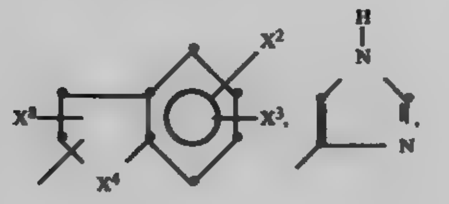
$$-X^{11}-X^9-\overset{O}{\overset{\|}{C}}-X_q^9-X^{11}-R^7;$$

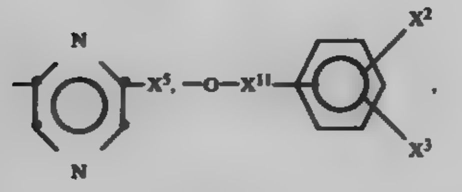
R^4 and R^5 are independently R^6 or in combination with the N of the NR^4R^5 group form an unsubstituted or mono or disubstituted, saturated or unsaturated, 4–7 membered heterocyclic ring, or benzofused 4–7 membered heterocyclic ring or said heterocyclic ring or said benzofused heterocyclic ring which further comprises a second heteroatom selected from O and NCH_3 and the substituent(s) is/are independently selected from C_{1-4}alkyl;

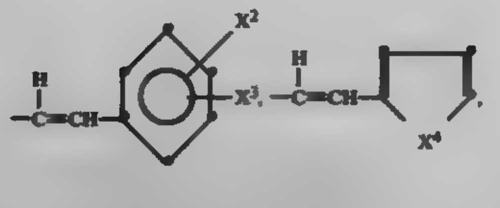
R^6 is H, loweralkyl, cycloloweralkyl, substituted or unsubstituted phenyl, or substituted or unsubstituted phenylloweralkyl (wherein the substituents are 1 or 2 of halo, loweralkyl, loweralkoxy, nitro, or CF_3);

R^7 is a α- or β-naphthyl, substituted or unsubstituted phenyl (wherein the substituents are 1 to 2 of halo, —NO_2, —OH, —X^{11}—NR^4R^5, loweralkyl, loweralkoxy, CF_3, loweralkylthio, cyano, phenyl, acetylamino, acetoxy, SCF_3, C≡CH, CH_2SCF_3, $OCHF_2$, SH or thio-phenyl) 2-, 3-, 4-pyridyl,









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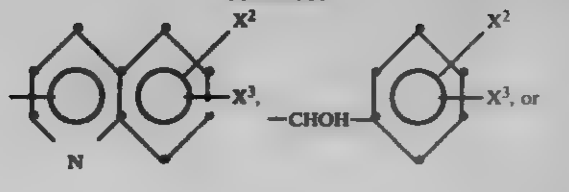
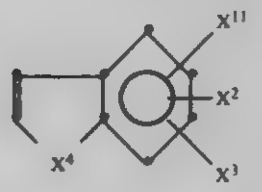
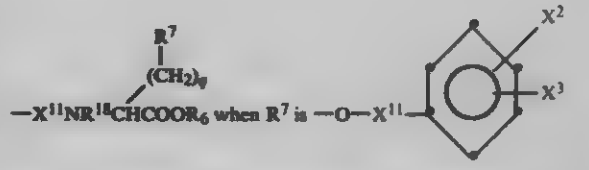
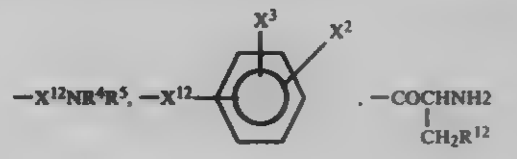


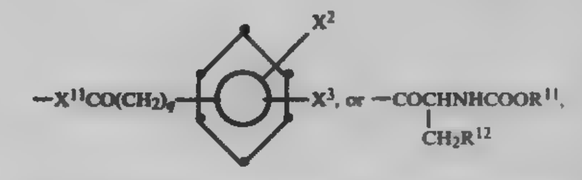


(with the proviso that q is not 0 in



R^8 is H, loweralkyl, cycloloweralkyl, —$X^{12}CONH_2$, —$X^{12}COOR^6$, —X^{11}—cycloloweralkyl,





R^{11} and R^{12} are independently loweralkyl or cycloloweralkyl;

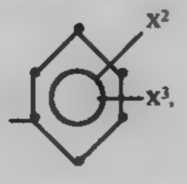
R^{13} is O;

R^{14} is loweralkyl or phenylloweralkyl;

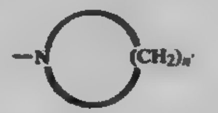
R^{16} and R^{17} are, when separate, independently H, loweralkyl, lower alkenyl,

—X^{11}cycloloweralkyl,

—X^{12}—NR^4R^5,$X^{12}CONR^4R^5$, —X^{12}C≡N,



—$X^{12}COOR^6$, or —CN; or, when joined, form with N, a heterocycle



wherein n' is 2–6;

R^{18} is H or loweralkyl;

p is 0 or 1;

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q is 0–4;

r is 1 or 2;

X^1 is H, —NO_2, CF_3 CN, OH, loweralkyl, halo, loweralkylthio, loweralkoxy, —$X^{11}COOR^6$ or —$X^{11}NR^4R^5$;

X^2 and X^3 are independently H, —OH, —NO_2, halo, loweralkylthio, loweralkyl or loweralkoxy;

X^4 is S, O, CH_2 or NR^8;

X^5 is H, CF_3, CN, $COOR^6$, NO_2, or halo;

X^6 is O or HH;

X^8 is H or loweralkyl;

X^9 and X^9 are independently NR^{18}, O;

X^{11} is absent or C_{1-4} linear or branched alkylene;

X^{12} is C_{1-4} linear o: branched alkylene.

and the pharmaceutically acceptable salts thereof.

8. A method of treating gastrointestinal disorders, central nervous system disorders, or regulating appetite in mammals which comprises administering to said mammals a pharmaceutically effective amount of a compound of Formula I of claim 1.

4,755,509
HETEROCYCLIC ALDOSE REDUCTASE INHIBITORS AND METHODS OF USING THEM

Jean-Marie Teulon, Celle Saint Cloud, France, assignor to Carbipem, Rueil Malmaison, France

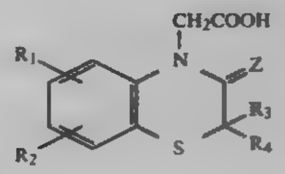
Filed May 14, 1985, Ser. No. 733,685

Claims priority, application France, May 18, 1984, 84 07791; Mar. 5, 1985, 85 03236

Int. Cl.⁴ C07D *279/16;* A61K *31/54*

U.S. Cl. 514—224.2 29 Claims

27. A process for inhibiting aldose reductase comprising reacting the aldose reductase with an effective amount of a compound selected from the group consisting of compounds of the formula:



wherein,

Z is selected from the group consisting of sulfur and oxygen;

R_1 and R_2 are selected from the group consisting of hydrogen, a halogen, trifluoromethyl, methoxy, thiomethyl, thiotrifluoromethyl and trifluoromethoxy; and

R_3 and R_4 are selected from the group consisting of hydrogen, lower alkyl, pyridyl and pyridyl substituted with a halogen; and

the nontoxic addition salts thereof.

4,755,510
NOVEL ANTICONVULSIVE TETRAHYDRO-1,2,4-OXADIAZINE-5-THION DERIVATIVES AND USE

Csilla Vezértnée Sólyom; László Ürögdi; Lajos Kisfaludy; László Otvös; Zsuzsanna Tegyey; Helga Tüdös née Fener; Éva Pálosi; Sára Rónai née Lukács; Eszter Cholnoky, and László Szporny, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar R.T. and MTA Kozponti Kemiai Kutato Intezete, both of Budapest, Hungary

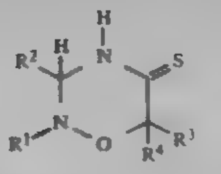
Filed Oct. 10, 1985, Ser. No. 786,203

Claims priority, application Hungary, Oct. 11, 1984, 3809/84

Int. Cl.⁴ A61K *31/535;* C07D *273/04*

U.S. Cl. 514—229.2 6 Claims

1. An optically active or racemic tetrahydro-1,2,4-oxadiazine-5-thion of the formula



(I)

wherein

R^1 stands for benzyloxycarbonyl, alkanoyl having 1 to 5 carbon atoms, thioalkanoyl having 1 to 5 carbon atoms, benzoyl which can be substituted with one or more alkyl having 1 to 4 carbon atoms or alkoxy having 1 to 4 carbon atoms, alkylcarbamoyl having 1 to 4 carbon atoms in the alkyl moiety or alkylsulphonyl having 1 to 4 carbon atoms,

R^2 is phenyl or naphthyl which can be substituted with one or more alkyl having 1 to 4 carbon atoms, alkoxy having 1 to 4 carbon atoms or amino disubstituted with the same or different alkyl groups having 1 to 4 carbon atoms,

R^3 is hydrogen, alkyl having 1 to 8 carbon atoms or benzyl, and

R^4 is hydrogen or alkyl having 1 to 4 carbon atoms.

6. A method for the anticonvulsive treatment of a susceptible animal subject which comprises administering a therapeutically effective dose of an optically active or racemic tetrahydro-1,2,4-oxadiazine-5-thione of the formula (I) as defined in claim 1.

4,755,511
TRICYCLIC PYRIDAZINONE COMPOUNDS

Brian H. Warrington, Welwyn Garden City, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

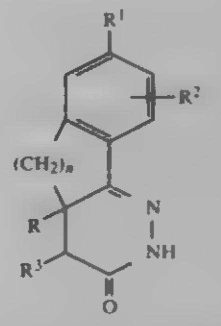
Continuation of Ser. No. 793,391, Oct. 31, 1985, abandoned. This application Sep. 22, 1987, Ser. No. 99,709

Claims priority, application United Kingdom, Nov. 1, 1984, 8427688; Nov. 1, 1984, 8427687

Int. Cl.⁴ C07D *237/36, 237/26;* A61K *31/50*

U.S. Cl. 514—248 11 Claims

10. A method for stimulating cardiac activity in a mammal comprising internally administering an effective amount of a compound of formula (I):



(I)

or a pharmaceutically acceptable salt thereof, wherein:

R is hydrogen or C_{1-2}alkyl;

R^3 is hydrogen;

or R and R^3 together form a bond;

n is one or two;

R^1 is hydrogen, C_{1-6}alkyl, C_{1-6}alkoxy, hydroxy, halo, cyano, —$CONR^4R^5$ or —$NHC(NCN)NHR^8$, wherein R^4, R^5 and R^8 are independently hydrogen or C_{1-6}alkyl; and

R^2 is hydrogen or C_{1-6}alkyl;

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4,755,512
PHARMACEUTICALLY USEFUL DIHYDROPYRIDINYLDICARBOXYLATE AMIDES AND ESTERS INCORPORATING ARYLPIPERAZINYLALKYL MOIETIES

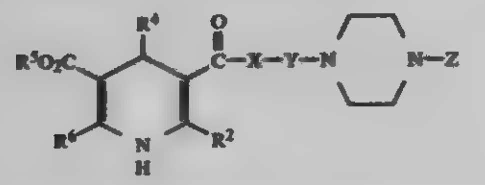
Graham Poindexter, and Davis L. Temple, Jr., both of Evansville, Ind., assignors to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of Ser. No. 599,097, Apr. 11, 1984, abandoned. This application Jan. 22, 1985, Ser. No. 693,426

Int. Cl.⁴ A61K *31/44, 31/495;* C07D *401/12, 401/14*

U.S. Cl. 514—252 9 Claims

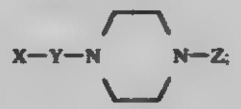
1. A compound of Formula XXI'



XXI'

and the pharmaceutically acceptable acid addition salts thereof wherein

- R^2 and R^6 are independently selected from lower alkyl, hydroxy-lower-alkyl, lower-alkoxy-lower-alkyl, lower-alkylamino-lower-alkyl, or di-lower alkylamino-lower-alkyl;
- R^4 is cycloalkyl of 5–7 carbons, bicycloalkenyl of 7–9 carbon atoms, furanyl, indolyl, methylthiopyridyl, thienyl, benzoxadiazolyl, and benzothiadiazolyl; phenyl, naphthyl, or substituted phenyl, with a substitutent selected from the group consisting of acetamino, lower alkyl, lower alkoxy, cyano, halogen, hydroxyl, nitro, trifluoromethyl, trifluoromethylsulfonyl, and methylsulfonyl;
- R^5 is R^2 or



- X is NH;
- Y is a C_2 to C_5 alkylene chain, alkyleneoxyalkylene, alkylenethioalkylene, or alkyleneaminoalkylene chain wherein each alkylene moiety having 2–5 carbon atoms; and
- Z is phenyl, pyridinyl, or pyrimidinyl, either unsubstituted or substituted with a group selected from among lower alkyl, lower alkoxy, cyano, halo, and trifluoromethyl.

5. The method of exerting a vasodilating effect in a mammalian host which comprises administering to a mammal having a condition in which therapeutic benefit is derived from vasodilation, a non-toxic effective vasodilating dose of a compound as claimed in claim 1.

4,755,513
ANTIMICROBIAL 1-SUBSTITUTED PHENYL-4-OXOQUINOLINE-3-CARBOXYLIC ACID COMPOUNDS

Hitoshi Tone, Hisashi Miyamoto, Hiraki Ueda, and Kazuyuki Nakagawa, all of Tokushima, Japan, assignors to Otsuka Pharmaceutical Company, Limited, Tokyo, Japan

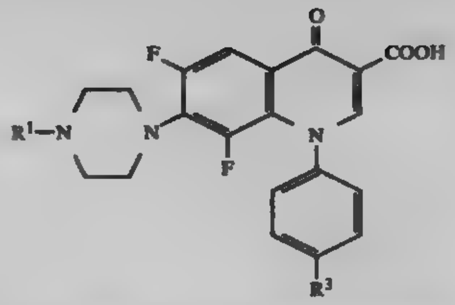
Filed Aug. 16, 1985, Ser. No. 766,337

Claims priority, application Japan, Jan. 30, 1985, 60-17256; Jul. 19, 1985, [illegible]; Jul. 19, 1985, [illegible]

Int. Cl.⁴ A61K *31/495;* C07D *401/04*

U.S. Cl. 514—254 4 Claims

3. An antimicrobial composition which comprises as an essential active ingredient an effective amount of a compound of the formula



wherein R^1 is methyl, and R^3 is an alkanoyloxy having 2 to 4 carbon atoms, or a pharmaceutically acceptable salt thereof in admixture with a pharmaceutically acceptable diluent or carrier.

4,755,514
PHENYLPYRAZINE DERIVATIVES AND THROMBOLYTIC AGENT

Akihiro Ohta, Tokyo, Japan, assignor to Suntory Limited, Osaka, Japan

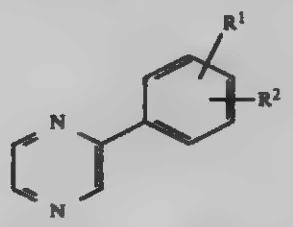
Filed May 9, 1986, Ser. No. 861,314

Claims priority, application Japan, May 10, 1985, 60-99382

Int. Cl.⁴ A61K *31/495;* G07B *241/12*

U.S. Cl. 514—255 6 Claims

1. A phenylpyrazine of the formula:



where R^1 is a hydrogen atom, a halogen atom, a lower alkoxy group or a hydroxyl group; and R^2 is a halogen atom or a hydroxyl group.

4,755,515
CHEMOTHERAPEUTIC 1-(2-CHLOROETHYL)-4-(3-CHLOROPROPYL)-PIPERAZINE, DIHYDROCHLORIDE

Marco Rabinovitz, Bethesda, Md., assignor to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Aug. 14, 1986, Ser. No. 896,262

Int. Cl.⁴ A61K *31/495;* C07D *295/00*

U.S. Cl. 514—255 2 Claims

1. 1-(2-chloroethyl)-4-(3-chloropropyl)-piperazine, dihydrochloride.

2. A pharmaceutical composition comprising a chemotherapeutically effective amount of 1-(2-chloroethyl)-4-(3-chloropropyl)-piperazine, dihydrochloride to inhibit growth of tumors and a pharmaceutically acceptable carrier.

4,755,516
ANTIVIRAL COMPOUNDS

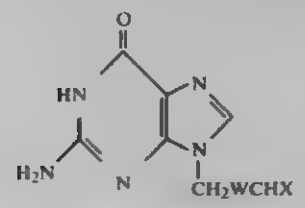
Richard L. Tolman, Warren, and Wallace T. Ashton, Clark, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 644,095, Aug. 24, 1984, abandoned. This application Apr. 6, 1987, Ser. No. 35,127

Int. Cl.⁴ C07D *473/02;* A61K *31/52*

U.S. Cl. 514—262 8 Claims

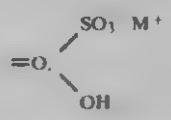
1. A compound of the formula:



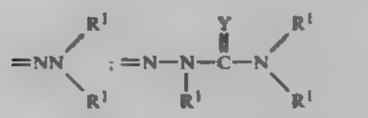
(I)

and the pharmaceutically acceptable salts thereof wherein W is $-OCH_2-$, $-CH_2CH_2-$, $-SCH_2-$ or $-CH=CH-$;

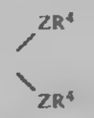
X is



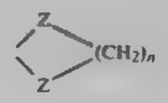
wherein M^+ is a pharmaceutically acceptable alkali metal cation; $=NOR^1$; NR^3;



wherein Y is O, S or NH.HA wherein HA is a pharmaceutically acceptable inorganic or organic strong acid;

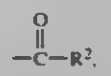


wherein each Z is independently O, S or NR^1 and R^4 is R^2 or the two R^4s taken together with the Z moieties to which they are attached form a group



wherein n is 2 or 3;

each R^1 is independently hydrogen, alkyl having 1 to 6 carbon atoms, phenyl, phenyl substituted with halo, with alkyl having 1 to 4 carbon atoms or with alkoxy having 1 to 4 carbon atoms, phenylalkyl wherein the alkyl moiety has 1 to 4 carbon atoms, or



$$-\overset{\overset{\displaystyle O}{\|}}{C}-R^2,$$

each R^2 is independently alkyl having 1 to 6 carbon atoms, phenylalkyl wherein the alkyl moiety has 1 to 4 carbon atoms, phenyl, phenyl substituted with halo, with alkyl having 1 to 4 carbon atoms or with alkoxy having 1 to 4 carbon atoms;

each R^3 is independently selected from phenyl, phenyl substituted with halo, phenyl substituted with alkyl having 1 to 4 carbon atoms or phenyl substituted with alkoxy having 1 to 4 carbon atoms.

4,755,517
DERIVATIVES OF XANTHINE, PHARMACEUTICAL COMPOSITIONS AND METHODS OF USE THEREFOR

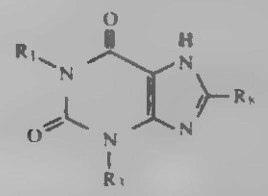
Robert F. Bruns, Ann Arbor, and Harriet W. Hamilton, Chelsea, both of Mich., assignors to Warner-Lambert Company, Morris Plain, N.J.

Filed Jul. 31, 1986, Ser. No. 892,538

Int. Cl.⁴ C07D *239/36;* A61K *31/52*

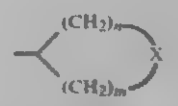
U.S. Cl. 514—263 9 Claims

1. A compound of the formula (I)



I

and the pharmaceutically acceptable salts thereof; wherein R_1 and R_3 are the same or different and are hydrogen, lower alkyl, hydroxyloweralkyl, or alkoxyloweralkyl; R_8 is dihydroxyalkyl; or



wherein X is oxygen, sulfur or NR_9 wherein

R_9 is hydrogen, lower alkyl or acyl of from two to six carbons; and n and m may be the same or different and

are integers of from one to five with the proviso that n and m together are of from one to four when X is oxygen and of from three to four where X is sulfur or NR_9.

4,755,518
IMIDAZOLYL OR TETRAZOLYL SUBSTITUTED BENZOIC ACID DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS THEREOF

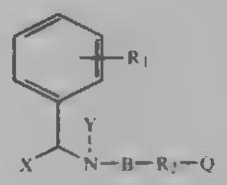
Michael F. Rafferty, and Graham Johnson, both of Ann Arbor, Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Division of Ser. No. 811,567, Dec. 20, 1985, Pat. No. 4,689,182. This application Nov. 10, 1986, Ser. No. 929,256

Int. Cl.⁴ A61K *31/41, 31/415;* C07D *223/14, 257/04*

U.S. Cl. 514—269 4 Claims

1. A compound of the formula:

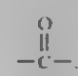


I

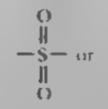
wherein.

(a) R_1 is tetrazolyl or COOR' wherein R' is H or lower alkyl of one to four carbons, inclusive;

(b) B is



$$-\overset{\overset{\displaystyle O}{\|}}{C}-, \qquad (B_1)$$



$$-\underset{\underset{\displaystyle O}{\|}}{\overset{\overset{\displaystyle O}{\|}}{S}}- \text{ or} \qquad (B_2)$$

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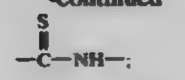
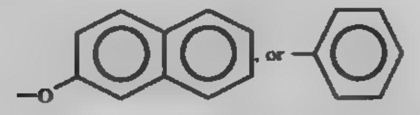
-continued



$$-\overset{\overset{\displaystyle S}{\|}}{C}-NH-;$$

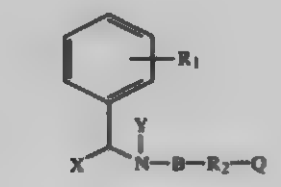
(B₃)

- (c) X and Y are independently H or lower alkyl of one to four carbons, inclusive;
- (d) R_2 is alkylene, alkenylene, alkynylene branched or linear chains of 1 to 11 carbons, inclusive;
- (e) Q is CH_3, COOH, Br, NH_2, H, imidazolyl, cyclohexyl,



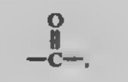
with the proviso that when B is (B_1) and Q is H, R_2 is not methylene and further with the proviso that when R_1 is COOR′ then Q consists of imidazolyl; or nontoxic, pharmaceutically acceptable acid addition or base salt thereof.

4. A pharmaceutical composition comprising an effective amount of a compound of the formula:



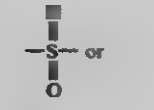
Wherein

- (a) R_1 is tetrazolyl or COOR′ wherein R′ is H or lower alkyl of one to four carbons, inclusive;
- (b) B is



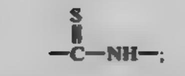
$$-\overset{\overset{\displaystyle O}{\|}}{C}-,$$

(B₁)



$$-\underset{\underset{\displaystyle O}{\|}}{\overset{\overset{\displaystyle O}{\|}}{S}}-\text{ or}$$

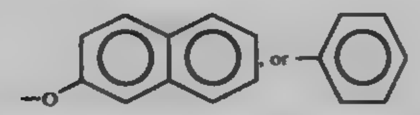
(B₂)



$$-\overset{\overset{\displaystyle S}{\|}}{C}-NH-;$$

(B₃)

- (c) X and Y are independently H or lower alkyl of one to four carbons, inclusive;
- (d) R_2 is alkylene, alkenylene, alkynylene branched or linear chains of 1 to 11 carbons, inclusive;
- (e) Q is CH_3, COOH, Br, NH_2, H, imidazolyl, cyclohexyl,



with the proviso that when R_1 is COOR′ then Q is imidazolyl or nontoxic, pharmaceutically acceptable acid addition or base salt thereof; and a pharmaceutically acceptable carrier.

4,755,519

METHODS OF TREATING AND PREVENTING TALL FESCUE TOXICOSIS BY THE ADMINISTRATION OF THIAMIN

Charles T. Dougherty, and Nelson Gay, both of Lexington, Ky., assignors to University of Kentucky Research Foundation, Lexington, Ky.

Filed May 22, 1986, Ser. No. 866,211

Int. Cl.⁴ A61K *31/51*

U.S. Cl. 514—276 4 Claims

1. A method of treating and substantially alleviating the symptoms of tall fescue toxicosis in a domestic farm animal, comprising:

orally administering thiamin to said animal suffering from tall fescue toxicosis at therapeutic levels sufficient for treating tall fescue toxicosis of approximately 0.000625 to 0.002 g/lb of the animal per day for approximately 60 days.

4,755,520

SPARTEIN COMPOUNDS, THEIR PREPARATION AND USE

Uwe Schön, Burgdorf; Wolfgang Kehrbach, Hanover; Bernd Hachmeister, Isernhagen; Gerd Buschmann, Hanover, and Ulrich G. Kühl, Gehrden, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

Filed Jun. 17, 1986, Ser. No. 875,311

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1985, 3522475

Int. Cl.⁴ A61K *31/435; C07D 471/22*

U.S. Cl. 514—286 5 Claims

1. A compound corresponding to the Formula (I)

$$S-(CH_2)_n-A \qquad (I)$$

wherein

S is a 17-spartein nucleus

n is 1, and

A is methoxyphenyl or chlorophenyl;

or a pharmacologically usable acid addition salt thereof.

4,755,521

FUNGICIDAL AGENTS

Wolfgang Krämer, Wuppertal; Joachim Weissmüller, Monheim; Wolf Reiser; Dieter Berg, both of Wuppertal; Wilhelm Brandes, Leichlingen, and Paul Reinecke, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

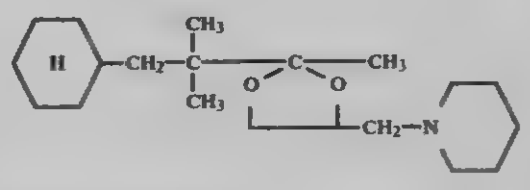
Division of Ser. No. 735,498, May 17, 1985, Pat. No. 4,713,379. This application May 28, 1987, Ser. No. 55,487

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1984, 3420828

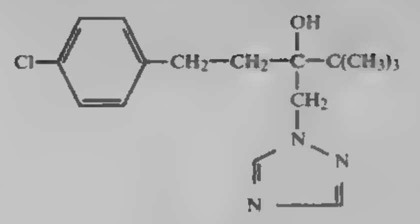
Int. Cl.⁴ A01N *43/40, 43/64*

U.S. Cl. 514—326 2 Claims

1. A composition according to claim 1, wherein the first ingredient is



and the second ingredient is



wherein R′ is hydrogen or lower alkyl and ═ is a single or a double bond.

4,755,522

DERIVATIVES OF N-[3-(2,4,6-TRIMETHOXYBENZOYL)PROPYL]PIPERIDINE, AND THEIR USE IN THERAPEUTICS

Louis Lafon, Paris, France, assignor to Laboratoire L. Lafon, Maisons-Alfort, France

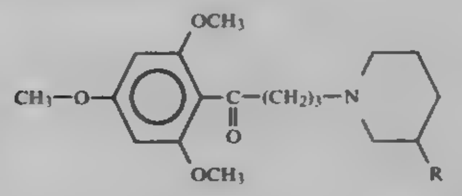
Filed Apr. 24, 1987, Ser. No. 42,298

Claims priority, application France, Apr. 28, 1986, 86 06133

Int. Cl.⁴ A61K *31/445; C07D 211/32*

U.S. Cl. 514—330 5 Claims

1. A compound of the formula:



(I)

wherein R is selected from the group consisting of $-CH_2OH$, $-COOH$ and $COOR_1$ groups, R_1 being C_1 to C_4 alkyl and a pharmaceutically-acceptable salt.

5. A method for the treatment of arrhythmia which comprises administering to a human in need thereof an effective amount of N-[3-(2,4,6-trimethoxybenzoyl)propyl] piperidine-3-methanol or a pharmaceutically acceptable salt thereof.

4,755,523

ABIETAMIDE DERIVATIVES

Yoshiaki Yoshikuni, Uji; Shoichi Chokai, Kameoka; Yukio Fujita, Takatsuki, and Takayuki Ozaki, Moriyama, all of Japan, assignors to Nippon Shinyaku Co., Ltd., Japan

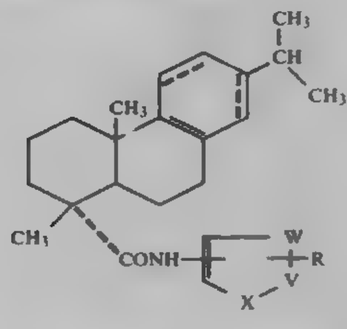
Filed Feb. 17, 1987, Ser. No. 15,287

Claims priority, application Japan, Feb. 15, 1986, 61-031585; Feb. 15, 1986, 61-031586

Int. Cl.⁴ C07D *277/46, 231/40;* A61K *31/415, 31/425*

U.S. Cl. 514—371 51 Claims

1. A compound of the formula I



(I)

wherein X is NZ wherein Z is hydrogen,, lower alkyl, or phenyl unsubstituted or substituted by halo or lower alkyl; or X is sulphur; when X is NZ, V is nitrogen, W is $\overset{|}{=}$, and R is hydrogen or lower alkyl; when X is sulphur, V is $\underset{|}{=}$, W is nitrogen, and R is hydrogen, lower alkyl, phenyl or $-CH_2COOR'$ wherein R′ is hydrogen or lower alkyl and ═ is a single or a double bond.

4,755,524

NOVEL PHENOLIC THIOETHERS AS INHIBITORS OF 5-LIPOXYGENASE

Richard A. Mueller, Glencoe; Richard A. Partis, Evanston, and James R. Deason, Wilmette, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

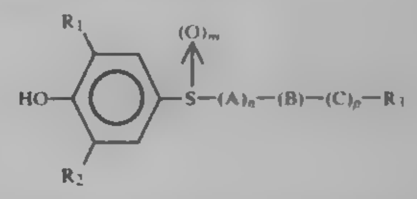
Continuation-in-part of Ser. No. 824,984, Jan. 31, 1986, Pat. No. 4,711,903. This application Jan. 15, 1987, Ser. No. 1,259

The portion of the term of this patent subsequent to Dec. 8, 2004, has been disclaimed.

Int. Cl.⁴ C07C *149/40;* A61K *37/10*

U.S. Cl. 514—381 40 Claims

1. A compound of the formula·



or a pharmaceutically acceptable salt thereof wherein R_1 and R_2 are the same or different and independently represent tert-alkyl or phenyl; A represents methylene or methylene substituted by alkyl, dialkyl or hydroxy, provided that when A includes hydroxymethylene, the hydroxymethylene group is not adjacent to a heteroatom; B represents sulfur, sulfone, oxygen, —NH— or nitrogen substituted by alkyl, phenyl, benzyl, phenyl substituted by one or two substituents which may be the same or different and are independently selected from the group consisting of halogen, C_1–C_6 alkyl, hydroxy, C_1–C_6-alkoxy, acetoxy, carboxylic acid and C_1–C_6 alkyl esters thereof, nitro or phenyl or benzyl substituted by one or two substituents which may be the same or different and are independently selected from the group consisting of halogen, C_1–C_6 alkyl, hydroxy, C_1–C_6 alkoxy, acetoxy, carboxylic acid and C_1–C_6 alkyl esters thereof, nitro or phenyl; C represents methylene or methylene substituted by alkyl; R_3 represents CO_2H, CO_2-alkyl, or a tetrazole group; m is 0 or 1, n is 2, 3, or 4 and p is 1, 2 or 3.

4,755,525

2-(FLUOROALKYL)-BENZIMIDAZOLES AS INHIBITORS OF 5-LIPOXYGENASE

Roger E. Markwell, Great Dunmow, and Stephen A. Smith, Bishop's Stortford, both of England, assignors to Beecham Group p.l.c., Brentford, United Kingdom

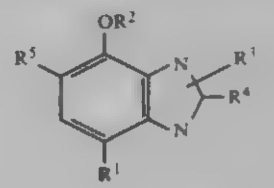
Filed Jun. 17, 1986, Ser. No. 875,350

Claims priority, application United Kingdom, Jun. 19, 1985, 8515522

Int. Cl.⁴ A61K *31/415;* C07D *235/10*

U.S. Cl. 514—394 12 Claims

1. A compound of the formula



(I)

or a salt or solvate thereof, in which, R^1 represents hydrogen or a lower alkyl group,

R^2 represents hydrogen, a lower alkyl group, or

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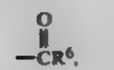
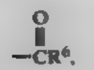

$-\overset{\displaystyle O}{\overset{\|}{C}}R^{6},$

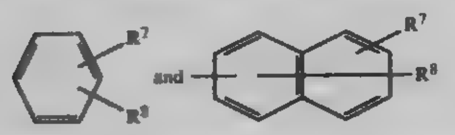
R^3 represents hydrogen, a lower alkyl group, or


$-\overset{\displaystyle O}{\overset{\|}{C}}R^{6},$

R^4 represents a lower alkyl group substituted by one or more fluorine atoms,

R^5 represents hydrogen, halogen or lower alkyl, and

R^6 represents a lower alkyl or a carbocyclic aryl group, which is selected from the group consisting of



wherein each of R^7, R^8 is selected from the group consisting of hydrogen, hydroxy, lower alkoxy, and halogen and said compound being other than any one of the following:

R^2=acetoxy, R^4=trifluoromethyl and R^1, R^3 and R^5=hydrogen;

R^2=methyl, R^4=trifluoromethyl and R^1, R^3 and R^5=hydrogen,

R^2=methyl, R^4=C_3F_7 and R^1, R^3 and R^5=hydrogen;

R^4=trifluoromethyl and R^1, R^2, R^3 and R^5=hydrogen;

R^5=chloro, R^4=trifluoromethyl; and R^1, R^2 and R^3=hydrogen;

R^5=chloro, R^2=methyl, R^4=trifluoromethyl and R^1 and R^3=hydrogen.

9. A pharmaceutical composition for treatment or prophylaxis of inflammatory conditions, allergic conditions and disorders related to the loss of gastro-intestinal integrity comprising an effective amount of a compound according to claim 1 or a pharmaceutically acceptable salt or solvate thereof, together with a pharmaceutically acceptable carrier.

4,755,526

METHOD OF INHIBITING AROMATASE

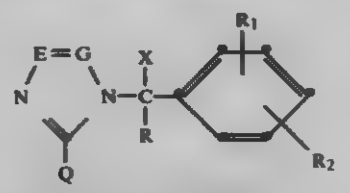
Kenneth S. Hirsch, New Palestine; Charles D. Jones, and Harold M. Taylor, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Jun. 18, 1984, Ser. No. 621,599

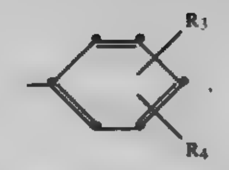
Int. Cl.⁴ A61K *31/41, 31/44, 31/415, 31/505*

U.S. Cl. 514—399 **16 Claims**

1. A method of inhibiting aromatase in a mammal which comprises administering to said mammal an aromatase inhibiting amount of a compound of the formula

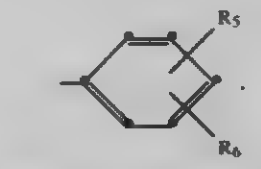


wherein R is



hydrogen, C_3–C_8 cycloalkyl, C_1–C_4 alkyl, or acetenyl;

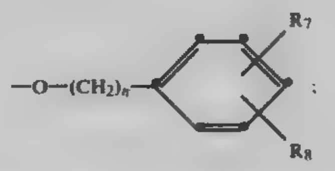
X is



hydrogen, pyridyl, or 5-pyrimidyl, or R and X, when taken together, are $=CH_2$, or when taken together with the carbon atom to which they are attached, form a cycloalkyl ring of 5-8 carbon atoms; and

Q is hydrogen or methyl;

where R_1 is hydrogen, fluoro, chloro, bromo, methoxy, ethoxy, phenyl, methylthio, methyl, ethyl, nitro, trifluoromethyl, or



R_2, R_4, R_5, R_6, R_7 and R_8 are independently hydrogen, chloro, or fluoro;

or R_1 and R_2, when taken together with the benzene ring to which they are attached, form a naphthalene ring; R_3 is hydrogen, fluoro, chloro, trifluoromethyl, methoxy, or nitro;

n is 1 or 2;

and E and G are independently N or CH, provided that E and G may not both be N at the same time;

or a pharmaceutically acceptable salt thereof.

4,755,527

ARYL SUBSTITUTED AMINOMETHYL BENZENE DERIVATIVES

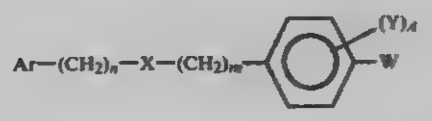
David M. Stout, Vernon Hills, and William L. Matier, Libertyville, both of Ill., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 401,751, Jul. 26, 1982, Pat. No. 4,562,201. This application Dec. 27, 1985, Ser. No. 813,732

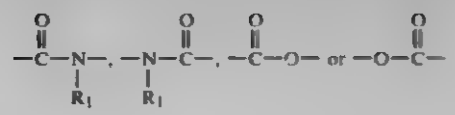
Int. Cl.⁴ C07D *295/10;* **A61K** *31/40, 31/395, 31/38*

U.S. Cl. 514—422 **16 Claims**

12. A method of treating cardiac arrhythmias in a patient by administration of an antiarrhythmic effective amount to such patient of a compound of the formula



wherein X is


$-\overset{\displaystyle O}{\overset{\|}{C}}-\underset{\displaystyle R_1}{\underset{|}{N}}-,\ -\underset{\displaystyle R_1}{\underset{|}{N}}-\overset{\displaystyle O}{\overset{\|}{C}}-,\ -\overset{\displaystyle O}{\overset{\|}{C}}-O-\text{ or }-O-\overset{\displaystyle O}{\overset{\|}{C}}-$

wherein R_1 is hydrogen, or lower alkyl, W is hydrogen or hydroxy; $(Y)_A$ is positioned ortho to W and is an aminomethyl having the formula $-CH_2NR_2R_3$ where R_2 and R_3 are the same or different and are hydrogen or lower alkyl or R_2 and R_3 may together with N form pyrrolidino, and A is 2; n and m are independently from 0 to 5; and Ar is thienyl, or a pharmaceutically acceptable salt thereof.

4,755,528

HIGH ENERGY IONIZING PROTECTIVE 2,3-DIAMINO-1,4-BUTANEDITHIOL; 4,5-DIAMINO-1,2-DITHIANE; AND N-ACYL AND N-ALKYL DERIVATIVES THEREOF, COMPOSITIONS AND METHODS OF USE THEREOF

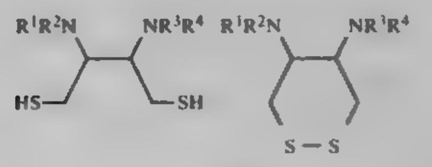
Mark T. DuPriest, Arlington, and Billie M. York, Jr., Fort Worth, both of Tex., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.

Division of Ser. No. 678,833, Dec. 6, 1984, Pat. No. 4,659,733. This application Apr. 17, 1987, Ser. No. 42,221

Int. Cl.⁴ A61K *31/095, 31/385;* **C07C** *149/14;* **C07D** *339/08*

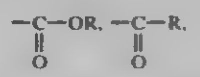
U.S. Cl. 514—436 **13 Claims**

1. A compound selected from the group consisting of:



wherein:

R^1, R^2, R^3, and R^4 are independently selected from the group consisting of H,


$-\underset{\displaystyle O}{\underset{\|}{C}}-OR,\ -\underset{\displaystyle O}{\underset{\|}{C}}-R,$

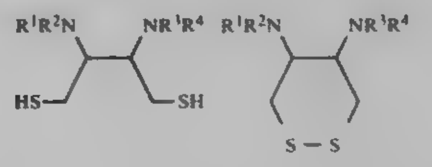
$(C_1$–$C_4)$ alkyl and phenyl, wherein the alkyl or phenyl may independently be substituted by H, halogen, $(C_1$–$C_6)$ alkyl, amino carboxyl, or hydroxyl and

R is selected from the group consisting of $(C_1$–$C_6)$ alkyl and phenyl, wherein the alkyl or phenyl may independently be substituted by H, halogen, alkyl having 1–6 carbons, amino, carboxyl and hydroxyl or the pharmaceutically acceptable salts thereof provided that at least one of R^1, R^2, R^3 and R^4 is other than H or C_1 alkyl or at least two of R^1, R^2, R^3 and R^4 are other than H.

8. A pharmaceutical composition, comprising an antihypertensive or high energy ionizing protective amount of the compound of claim 1; and

a pharmaceutically-acceptable carrier thereof.

11. A method of protecting from high-energy, ionizing radiation by administering to a subject in need of such protection a high-energy, ionizing radiation-protecting amount of a pharmaceutical composition comprising a compound selected from the group consisting of



wherein

R^1, R^2, R^3, and R^4 are independently selected from the group consisting of H, —COOR, —COR, $(C_1$–$C_6)$ alkyl and phenyl, wherein the alkyl or phenyl may independently be substituted by H, halogen, $(C_1$–$C_6)$ alkyl, amino, carboxyl or hydroxyl and R is selected from the group consisting of $(C_1$–$C_6)$ alkyl and phenyl, wherein the alkyl or phenyl may independently be substituted by H, halogen, $(C_1$–$C_6)$ alkyl, amino, carboxyl or hydroxyl, or pharmaceutically acceptable salts thereof

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4,755,529

GUAIAZULENE DERIVATIVES AND THEIR METHODS OF USE

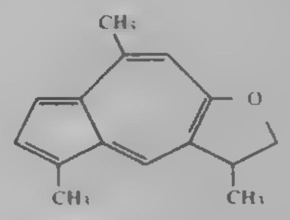
Tatsuo Higa, Okinawa, Japan, and Shinichi Sakemi, Vero Beach, Fla., assignors to Harbor Branch Oceanographic Institution Inc., Ft. Pierce, Fla.

Filed Jun. 26, 1986, Ser. No. 879,080

Int. Cl.⁴ A61K *31/34;* **C07D** *307/93*

U.S. Cl. 514—468 **14 Claims**

1. A substantially pure compound according to the formula



4,755,530

1-HYDROXY-8-ACYLOXY-10-ACYL ANTHRONES, PROCESS FOR THEIR PREPARATION AND THEIR USE IN HUMAN OR VETERINARY MEDICINES AND IN COSMETIC FORMULATIONS

Braham Shroot, Antibes; Gerard Lang, Saint Gratien, and Jean Maignan, Tremblay les Gonesse, all of France, assignors to Centre International de Recherches Dermatologiques (C.I.R.D), Valbonne, France

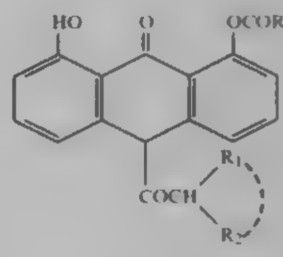
Filed Apr. 16, 1986, Ser. No. 852,822

Claims priority, application France, Apr. 17, 1985, 85 05785

Int. Cl.⁴ A61K *31/12;* **C07C** *50/16*

U.S. Cl. 514—510 **7 Claims**

1. 1-hydroxy-8-acyloxy-10-acyl anthrone having the formula



(I)

wherein

R_1 represents hydrogen or linear lower alkyl,

R_2 represents hydrogen, linear or branched alkyl having 1–6 carbon atoms, or linear or branched alkenyl having 2–6 carbon atoms,

or R_1 and R_2 together with the carbon atom to which they are attached form a cycloalkyl radical having 3–6 carbon atoms,

R_3 represents linear or branched alkyl having 1–6 carbon atoms, linear or branched alkenyl having 2–6 carbon atoms, cycloalkyl having 3–6 carbon atoms

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6. A cosmetic or pharmaceutical composition comprising in an appropriate vehicle an effective amount of, as an active component, the compound of claim 1.

4,755,531
THIOL ESTERS OF 4,5-ALLENYL PROSTAGLANDINS AND USE THEREOF AS ANTIGASTRIC SECRETION AGENTS

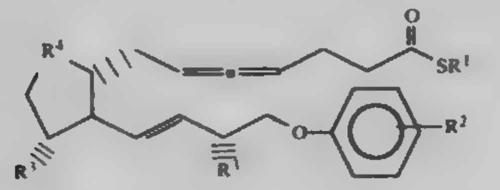
Joseph M. Muchowski, Sunnyvale, Calif., and Angel Guzman, Mexico City, Mexico, assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Aug. 11, 1986, Ser. No. 895,067

Int. Cl.⁴ C07C *153/023;* **A61K** *31/265*

U.S. Cl. 514—513 **11 Claims**

1. A compound having the structure represented by the formula:



where:

R^1 is alkyl, cycloalkyl, aryl, or aralkyl;

R^2 is hydrogen, halo, trifluoromethyl, lower alkyl, or lower alkoxy;

each R^3 is independently hydroxy, or protected hydroxy; and

R^4 is C(O) or $CH(R^3)$, where R^3 is defined above, and where alkyl, cycloalkyl, aryl, and aralkyl are as defined in the specification.

4,755,532
ANALGESIC AND ANTI-INFLAMMATORY COMPOSITIONS COMPRISING DIPHENHYDRAMINE AND METHODS OF USING SAME

Abraham Sunshine, New York; Eugene M. Laska, Larchmont, and Carole E. Siegel, Mamaroneck, all of N.Y., assignors to Richardson-Vicks, Inc., Shelton, Conn.

Division of Ser. No. 856,414, Apr. 28, 1986, Pat. No. 4,683,243, which is a division of Ser. No. 711,525, Mar. 14, 1985, Pat. No. 4,585,783, which is a division of Ser. No. 578,288, Feb. 8, 1984, Pat. No. 4,522,826. This application Apr. 23, 1987, Ser. No. [illegible]

Int. Cl.⁴ A61K *31/19, 31/195*

U.S. Cl. 514—557 **38 Claims**

1. A method for eliciting an enhanced analgesic and anti-inflammatory response in a mammalian organism in need of such treatment, comprising administering to such organism

(i) an analgesically and anti-inflammatorily effective amount of sulindac, diclofenac, fenclofenac, alclofenac, ibufenac, isoxepac, furofenac, tiopenac, zidometacin, acemetacin, fentiazac, clidinac or oxipinac or a pharmaceutically acceptable salt thereof, and

(ii) an analgesically and anti-inflammatorily potentiating amount of diphenhydramine.

4,755,533
TOPICAL VAGINAL USE OF LYSINE p-ISOBUTYLPHENYLPROPIONATE IN ANTI-INFLAMMATORY TREATMENT

Giorgio Zagnoli, Como, Italy, assignor to Laboratorio Italiano Biochimico Farmaceutico LISAPHARMA SpA, Erba, Italy

Filed Apr. 30, 1987, Ser. No. 44,282

Claims priority, application Italy, Jun. 16, 1986, 20797 A/86

Int. Cl.⁴ A61K *31/195*

U.S. Cl. 514—561 **2 Claims**

1. A composition for vaginal topical use for the local and targeted anti-inflammatory treatment of pathologies of obstretic and gynecological type, comprising lysine p-isobutylphenylpropionate, characterised in that the lysine p-isobutylphenylpropionate is formulated in aqueous solution with the following substances and relative proportions:

lysine p-isobutylphenylpropionate: 0.5–2.0 g
trimethylcetylammonium p-toluenesulphonate: 0.005–0.02 g
red rose perfume: 0.05–0.2 ml
distilled water: to make up to 100.0 ml.

4,755,534
PROPENYLAMINES, PHARMACEUTICAL COMPOSITIONS CONTAINING THEM AND THEIR USE AS PHARMACEUTICALS

Anton Stuetz, Maria Enzersdorf, Austria, assignor to Sandoz Ltd., Basel, Switzerland

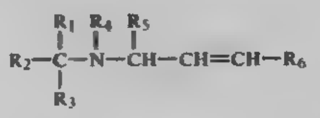
Continuation of Ser. No. 233,559, Feb. 11, 1981, abandoned, which is a continuation-in-part of Ser. No. 180,207, Aug. 21, 1980, abandoned. This application Sep. 4, 1984, Ser. No. 646,724

Claims priority, application Switzerland, Aug. 22, 1979, [illegible]

Int. Cl.⁴ A61K *31/135;* **C07C** *87/28*

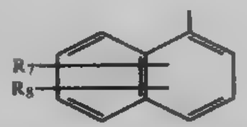
U.S. Cl. 514—655 **7 Claims**

1. A compound of the formula:



$$R_2-\underset{R_3}{\overset{R_1}{C}}-\overset{R_4}{N}-\overset{R_5}{CH}-CH=CH-R_6 \qquad I$$

wherein the double bond is in the trans configuration and R_1 is a radical of formula IIa,



IIa

R_2, R_3, R_5, R_7 and R_8 are each hydrogen,

R_4 is methyl, and

R_6 is a radical of formula IIIa

$$—C{\equiv}C—R_{11} \qquad IIIa$$

where R_{11} is n-butyl, tertiary butyl or phenyl or a chemotherapeutically acceptable acid addition salt thereof.

7. A method of treating diseases or infections caused by mycetes which comprises administering to a subject in need of treatment an effective amount of a compound as claimed in claim 1 or a chemotherapeutically acceptable acid addition salt thereof.

4,755,535
COMPOSITIONS COMPRISING 1-SUBSTITUTED AZACYCLOALKENES

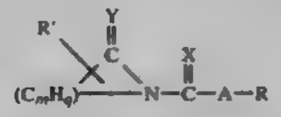
Gevork Minaskanian, Irvine, and James V. Peck, Costa Mesa, both of Calif., assignors to Nelson Research & Development Co., Irvine, Calif.

Filed Apr. 23, 1986, Ser. No. 855,497

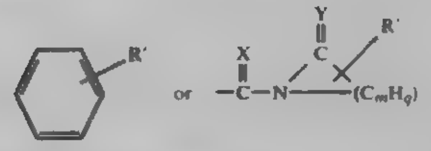
Int. Cl.⁴ C07D *223/10;* **A61K** *31/55*

U.S. Cl. 514—947 **39 Claims**

1. A composition comprising an effective amount of a physiologically active agent and a non-toxic, effective penetrating amount of an azacycloalkene having at least one double bond in the ring and of the general formula

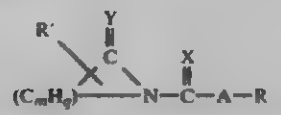


wherein X and Y, each, may represent sulfur, oxygen or two hydrogen atoms, A is a branched or straight chain, divalent aliphatic radical having from 0 to 2 double bonds; R' is selected from the group consisting of H, a lower alkyl group having 1–4 carbon atoms, phenyl, lower alkyl or halogen substituted phenyl, acetamido, halogen, piperidinyl, lower alkyl or halogen substituted piperidinyl, carbalkoxy, carboxamide, and alkylformyl; m is 3–7; q is 2m–2x, wherein x equals the number of double bonds in the lactam ring and may be 1, 2 or 3, and R is CH_3,

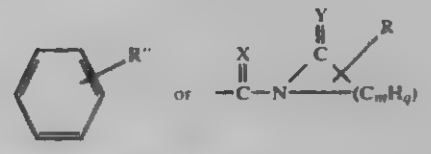


wherein R'' is H or halogen.

19. A method for administering an effective amount of a physiologically active agent to and/or through the skin or other membrane of a human or animal which comprises contacting said physiologically active agent with said skin or other membrane in the presence of a non-toxic azacycloalkene having at least one double bond in the ring and of the general formula



wherein X and Y, each, may represent sulfur, oxygen or two hydrogen atoms, A is a straight or branched chain, divalent aliphatic radical having from 0 to 2 double bonds; R' is selected from the group consisting of H, a lower alkyl group having 1–4 carbon atoms, phenyl, lower alkyl or halogen substituted phenyl, acetamido, halogen, piperidinyl, lower alkyl or halogen substituted piperidinyl, carbalkoxy, carboxamide, and alkylformyl; m is 3–7; q is 2m–2x, wherein x equals the number of double bonds in the lactam ring and may be 1, 2 or 3, and R is $—CH_3$,



wherein R'' is H or halogen.

37. 1-Alkyl substituted, azacyclohept-3,5-dien-2-ones wherein said alkyl group comprises at least three carbon atoms.

4,755,536
COBALT CATALYSTS, AND USE THEREOF FOR THE CONVERSION OF METHANOL AND FOR FISCHER-TROPSCH SYNTHESIS, TO PRODUCE HYDROCARBONS

Charles H. Mauldin; Stephen M. Davis, and Kym B. Arcuri, all of Baton Rouge, La., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Division of Ser. No. 813,918, Dec. 27, 1985, Pat. No. 4,663,305. This application Oct. 24, 1986, Ser. No. 922,885

Int. Cl.⁴ C07C *1/04*

U.S. Cl. 518—709 **7 Claims**

1. A process useful for the conversion of synthesis gas feed to hydrocarbons which comprises contacting said feed at reaction conditions with a catalyst which comprises from about 2 percent to about 25 percent cobalt, based on the weight of the catalyst composition, composited with titania, or a titania-containing support, to which is added a zirconium, hafnium, cerium, or uranium promoter, the weight ratio of the zirconium, hafnium, cerium, or uranium metal:cobalt being greater than about 0.010:1.

4,755,537
SYNGAS CONVERSION CATALYST PRODUCTION AND USE THEREOF

Leonard Cotton, Epsom; Barry Nay, Woking, and Michael J. Wilcox, Weybridge, all of England, assignors to The British Petroleum Company p.l.c., England

Division of Ser. No. 848,401 filed as PCT GB85/00330 on Jul. 25, 1985, published as WO86/00885 on Feb. 13, 1986, now Pat. No. 4,683,219. This application Jan. 5, 1987, Ser. No. 6,087

Claims priority, application United Kingdom, Jul. 25, 1984, 8418975

Int. Cl.⁴ C07C *1/04*

U.S. Cl. 518—717 **22 Claims**

1. A process for the production of hydrocarbons having a carbon number greater than one from a synthesis gas principally comprising carbon monoxide and hydrogen which process comprises contacting the synthesis gas at a temperature in the range from 190° to 400° C. and a pressure in the range from atmospheric pressure to 100 bar with a catalyst comprising a reductively activated composition having the formula:

$$Ru_aA_bCeO_x \qquad (I)$$

wherein

A is an alkali metal,

x is a number such that the valence requirements of the other elements for oxygen is satisfied,

a is greater than zero and less than 1% w/w, based on the total weight of the composition,

b is in the range from zero to 10% w/w based on the total weight of the composition, and

Ce and O constitute the remainder of the composition,

said composition of the formula (I) having been prepared by the steps comprising:

(A) bringing together in solution soluble salts of the metals ruthenium and cerium and a precipitant selected from the carbonate, bicarbonate, hydroxide and mixtures of same of an alkali metal or ammonium under conditions whereby there is formed a precipitate comprising ruthenium and cerium in the form of compounds thermally decomposable to their oxides, and

(B) recovering the precipitate obtained in step (A).

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SKINLESS POROUS PARTICLE PVC RESIN AND PROCESS FOR PRODUCING SAME

Roman B. Hawrylko, North Olmsted, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 38,099, Apr. 14, 1987, Pat. No. 4,711,908. This application Oct. 6, 1987, Ser. No. 106,836

Int. Cl.⁴ C08J *9/28*

U.S. Cl. 521—56 **5 Claims**

1. An agitated aqueous suspension process for producing porous, substantially skinless, agglomerated polyvinyl chloride resin particles comprising polymerizing vinyl monomer in the presence of a dispersant system comprising (a) from about 0.02 to about 0.06 part by weight per 100 parts by weight monomer of an ion sensitive primary dispersant capable of thickening water; (b) from about 0.2 to about 0.4 part by weight of non-polyethylene oxide containing secondary dispersant; and (c) from about 0.1 to about 0.3 part by weight per 100 parts by weight vinyl monomer of a polyvinyl acetate secondary dispersant having a hydrolysis level less than 70%, said resin particles having a mercury porosity of from about 0.1 cc/g to about 0.7 cc/g, and a particle size of from about 70 microns to about 1000 microns, and a friability of less than about 2, and a powder mix time of less than about 400 seconds, and a shape factor less than about 0.85 and wherein greater than about 20% [illegible] rea of the surface of said particle is PVC as measured by

porous polyvinyl chloride particles having a mercury porosity of from about 0.1 cc/g to about 0.7 cc/g.

4,755,540
POLYMER MEMBRANE

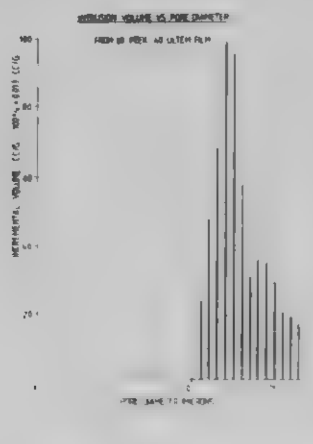
Susan V. Blakey, Reading, England, assignor to Raychem Limited, Swindon, England

Filed May 20, 1985, Ser. No. 736,484

Claims priority, application United Kingdom, May 18, 1984, 8412673

Int. Cl.⁴ C08J *9/26*

U.S. Cl. 521—62 **8 Claims**



1. A method of making a polyaryletherketone porous membrane, comprising the steps of:

(a) providing a mixture of a first polymeric material, which is a polyaryletherketone, and a second polymeric material, which is partially incompatible with said first polymeric material,

(b) forming said mixture into a film; and

(c) extracting from said film at least a substa

consisting of hydrogen, C_1–C_4 alkyl, —SO_3H and SO_3H salified with organic or inorganic bases,

Ar represents a member selected from the group consisting of phenyl, unsubstituted or substituted with one or more C_1–C_4 alkyl, Cl, Br, and C_1–C_4 alkylthio; and

(b) at least one member selected from the group consisting of an organic tertiary amine of aliphatic type, an ester of p-dimethylaminobenzoic acid, 4,4′-bis-(C_1–C_6 dialkylamino) benzophenone.

4,755,542
FLEXIBLE THERMOPLASTIC EPOXY RESINS AND COATINGS PREPARED THEREFROM

Michael B. Cavitt, Lake Jackson, and David J. Duncan, Freeport, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 11, 1987, Ser. No. 24,748

Int. Cl.⁴ F21D *7/22;* **C08L** *63/10*

U.S. Cl. 523—172 **33 Claims**

1. A mixture comprising

(I) from about 70 to about 95 percent by weight based upon the combined weight of components (I) and (II) of a thermally stable, flexible thermoplastic epoxy resin resulting from

(A) reacting, in the presence of an effective quantity of a catalyst for effecting the reaction between a vicinal epoxide group and an aromatic hydroxyl group, a mixture comprising

(1) at least one aromatic based epoxy resin having an average of more than 1 but not more than about 2.1 vicinal epoxy groups per molecule;

(2) at least one aliphatic based epoxy resin having an average of more than 1 but not more than about 2.1 vicinal epoxy groups per molecule;

(3) at least one material having an average of more than 1 but not more than about 2 phenolic hydroxyl groups per molecule,

wherein components (1) and (2) are employed in quantities such that from about 90 to about 99.6 percent of the vicinal epoxy groups are contributed by the aromatic

0.48:1; and component (6) is employed in an amount which provides from about 0.87 to about 1 group reactive with a vicinal epoxy group per combined vicinal epoxy group contained in the product from (B) and component (5); and

(D) reacting, in the presence of an effective quantity of a catalyst for effecting the reaction between a vicinal epoxide group and a carboxyl group, the product resulting from (C) with

(7) a carboxyl terminated elastomer in an amount which provides a ratio of carboxyl groups per vicinal epoxy group contained in components (1) and (2) of from about 0.0028:1 to about 0.03:1;

with the proviso that the combined quantity of groups reactive with an epoxide group from components (3), (4), (6) and (7) cannot exceed the combined quantity of epoxide groups contained in components (1), (2) and (5) and

(II) from about 5 to about 30 percent by weight based upon the combined weight of components (I) and (II) of the product resulting from reacting, in the presence of an effective quantity of a catalyst for effecting the reaction between a vicinal epoxy group and a group selected from —OH, —SH, —COOH or —CO—O—CO— groups,

(8) at least one aromatic based epoxy resin having an average of more than 1 but not more than about 2.1 vicinal epoxy groups per molecule and an epoxide equivalent weight of not greater than about 225, calculated on the basis of the aromatic groups being free of substituent groups whether or not they do in fact contain substituent groups; and

(9) at least one material having only one group per molecule which is reactive with a vicinal epoxy group selected from —OH, —SH, —COOH or —CO—O—CO— groups; and

wherein components (8) and (9) are employed in an amo which provides a [illegible]

epoxy group to

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[illegible] Netrona Heights [illegible]

[illegible] City; Donald E. [illegible]

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assignors to M

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[illegible] hama; Yukio Hashim[illegible]
[illegible] geru Kobayashi, both of [illegible]
Matsuoama, Yokkaichi, and Kazuo Kimura, Hofu,
Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., T[illegible]

Continuation of [illegible]
which is a co[illegible]
abandoned, whic[illegible]
1984 abandoned, which is a continuation of Ser. No. 37[illegible]
May 18, 1982, abandoned, which is a continuation of Ser[illegible]

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Chi; Hiroyasu Koven
and Reiko Kubota, T
signors to Nisshin Flour Milling
Filed Apr. 22, 1981, Se
claims priority, application Japan

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...tion-in-part of Ser. No. 906,550, Sep. 12, 19... which is a continuation of Ser. No. 6... ...doned, which is a continuation-in-part o... ...andoned. This applicatio... ...er. No. 53,955...

...d 859, Aug. 17

...and Robert A. Nunn, Mass... ...assignors to Imperial Chemical Indu...

...gering, Randolph, N.J., ...Hanover, N.J. ...tion of Ser. No. 863,267, May 1... ...ntinuation-in-part of Ser... ...4,668,194. This applica...

DITHIOBIS-BENZOTHIAZOLE... ...LCOHOL REACTION MEDIUM

...town, and Roger J. Hopper, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 757,118, Jul. 11, 1985. This

...IN AN ACIDIC AQUEOUS REACTING ME...

...seph F. Geiser, Uniontown, and Roger J. Hopper, A... of Ohio, assignors to The Goodyear Tire & Rubb... Akron, Ohio

Continuation... ...ndoned. This...

...THIOCYANATOMETHYLTHIOBENZOTHI...

Gerold Schade; Karlfried Wedemeyer, both of ... Herbert Diehl, Leverkusen, all of Fed. Rep. ...assignors to Bayer Aktiengesellschaft, Leverkus... ...of Germany

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regory M. L. Patterson, both of
versity of Hawaii, Honolulu,

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PHOSPHATE
vacca, Telford, and S. Jane desolms,
Pa., assignors to Merck & Co., Inc., R
ed Jun. 20, 1987, Ser. No. 75

[illegible]

PROCESS FOR REGENERATING
ALDEHYDES

Anick Thoer, St Germain Les Arpajon; Ghislain Denis,
louse; Michel Delmas, Auzeville Tolosane, and Antoine
Toulouse, all of France, assignors to Institut National
technique, Toulouse, France
PCT No. PCT/FR86/00216, § 3
Date Apr. 10, 1987, PCT Pub
Filed Jun. 20, 1
y, application France, Jul. 10, 1985, 8
Int. Cl.⁴ C07C 201/19
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er, Ecully, France, assignor to Rhone-P
ncs, France

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ade St Louis County, and Ellen Y. Lin, Chester
d, both of Mo., assignors to Anheuser-Busch, Incorporate
Louis, Mo.
ntinuation-in-part of Ser. No. 860 ,
ndoned. This application Jun. 2, 198
Int. Cl.⁴ C

ndrew M. Creighton, London, and William A
oth of England, assignors to National Rese

CONTAINING THE SAME
Osamu Iwamoto, Yokohama; Shinichiro Kunimoto, Fujisawa;
oshi Kusumoto, Kamakura, and Toru Ono, Fujisawa, all of
Japan, assignors to Tokuyama Soda Kabushiki Kaisha,
Yamaguchi, Japan
Filed Jun. 24, 1986, Ser. No. 877,739
Claims priority, application Japan, Jun. 24, 1985, 60-13
Aug. 16, 1985, 60-179320

OMPOUNDS
IO-4-TRIFLUOROM HYL-B
CHLORIDE AND
O-4-TRIFLUOROME HYL-BEN
YL FLUORIDE
Gladbach, and Rudolf Braden, Oden
Rep. of Germany, assignors to B
everkusen, Fed. Rep. of German
d Jun. 11, 1987, Ser. No. 61

ACID AND PYROMELLITIC ACID BY
BROMINE ADDITION IN AN OXIDAT
POLYALKYLAROMATICS
Wayne P. Schammel, Naperville, and John K. Darin, dec
late of Naperville, both of Ill. (by Catherine L. Darin, adm
tratrix), assignors to Amoco Corporation, Chicago, Ill
Continuation-in-part of Ser. No. 566,585, Dec
abandoned. This application May 15, 1985, Ser

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ilstone, Rowayton, Conn
mpany, Stamford, Conn

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4-ISOPROPYL-7-METHYLENE-5-CYCLODECEN-1-OL

Masataka Mori; Kenji Mori; Takeshi Kitahara, all of Tokyo, and Koshi Koseki, Yokohama, all of Japan, assignors to Japan Tobacco, Inc., Tokyo, Japan

PCT No. PCT/JP85/00677, § 371 Date Aug. 7, [illegible]

7, 1987, PCT Pub. No. WO87/03 [illegible]

1987

Filed Dec. 9, 1 [illegible]

[illegible]

Muse, Jr., Kent, and Donald E. Smith, Tallmadge, all of Oh[illegible] assignors to The Goodyear Tire & Rubber Company, Akro[illegible]

[illegible] 1985 abandoned, wh[illegible]

[illegible] Mar. 5, 1984, Pat. No [illegible]

[illegible] 1986, Ser. No. 934,36[illegible]

[illegible] he term of this patent subsequen[illegible]

has been disclaimed

Int. Cl.⁴ C07C [illegible]

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[illegible] ams, Easto, Pa.

[illegible] uation-in-part of Ser. No. 524,133, A[illegible]

65,590. This application Jan. 22, 1984, [illegible]

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2001, has been disclaimed.

Int. Cl.⁴ C07C 1/20, C10G 17/[illegible]

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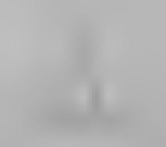
rard D. Beggs, Duluth; Harold W. Friesen, Dunwood
David M. Mitchell, Dunwoody; Wendell G. Nutt, Dunwood
and Palmer D. Thomas, Tucker, all of Ga., assignors to AT&
chnologies, Berkeley Heights and AT&T Bell Laboratorie
rray Hill, both of, N.J.
nuation-in-part of Ser. No. 780,859, Sep. 27, 1985. Th
plication Sep. 24, 1986, Ser. No. 910,848
Int. Cl.⁴ H01B 11/02

nunications cable

4,755,630
PROVIDING
AND MAGNETIC SHIELDI
, Palos Verdes Peninsula, and
f Calif., assignors to MRI

urchwell, Highland; Philip L.
d James N. Humenik, LaGrang
assignors to International Business Machi
Armonk, N.Y.
Division of Ser. No. 721,885, Apr. 11, 1985, Pa



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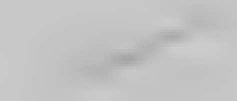
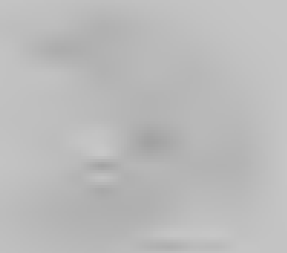
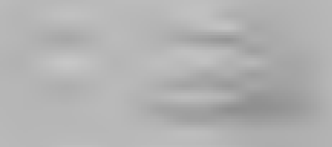




PRESSURE CYLINDER

I. Rep. of Germany,

Filed Sep. 30



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Ames, Iowa, assignor to

THERMAL ELECTRICAL SHUNT
E. Oeschger, Palo Alto, Calif., assignor
Industries, Inc., Livingston, N.J.
Continuation of Ser. No. 820,545, Jan. 17, 1986, ab
application Aug. 10, 1987, Ser. No.

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EM FOR A MICROWAVE O

ler, Kentwood, Mich., assignor

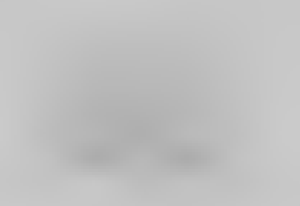
mpany, Richmond, Va.

of Ser. No. 745,669, Jun. 17, 19

This application Jul. 9, 1987. S

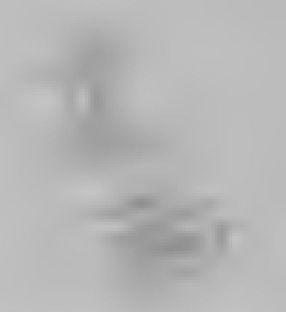
tion of the term of this patent

Int. Cl.⁴ H



ed Apr. 24, 1986, Ser. No. 855,291

through a swinging means to condu



Utah, assignor

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ING M

a, and Takeshi Ch
nors to Amada Company, Limited, Jap
filed Jan. 24, 1986, Ser. No. 821,963

4,755,652
PARATUS FO
ETAL SHEETS
oncalieri, Italy, as

en L. Crowley, 1691 Olive Ave., Fremont, Calif. 94
Thomas J. DeBolski, 412 - 34th Ave., Santa Cruz, C
062; Ahmad Kermani, 1293 Avala Dr., #4, Sunny

ral Electric Company, Louis
Filed Dec. 4, 1986, Se
Int. Cl.

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1092
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J. Wilsey, Sherman, Tex., assignor to
rporation, Bay City, Mich.
of Ser. No. 796,729, Nov. 12, 1985. Pat
plication Sep. 21, 1987, S
Int. Cl.⁴ H05B 3/

ATION COM
ckson, Richard

[illegible]

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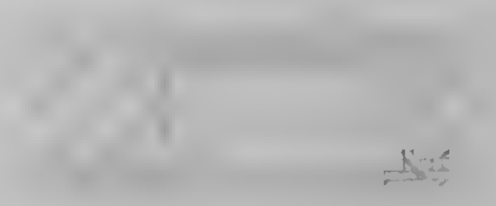
application Sep. 30, 19
riority, application Jap

Jerry E. Hackman, Otto-Hahn St
Rep. of Germany



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both of Fla., assignors to Square D Com

4,755,667

[illegible] FOR DETERMI[illegible]

CONCENTRATION OF SUBSTANCES

[illegible] Marsoner, Steinberg; Hellfried Karpf, and Alf[illegible] Leitner, both of Graz, all of Austria, assignors to AVL A[illegible] Schaffhausen, Switzerland

Filed Apr. 17, 1987, Ser. No. 40,678

Claims priority, application Austria, Oct. 10, 19[illegible]

4,755,66[illegible]

[illegible]ERFEROMETRIC [illegible]

POSITIONED FIBER OPTIC[illegible]

Herndon, Va., a[illegible]

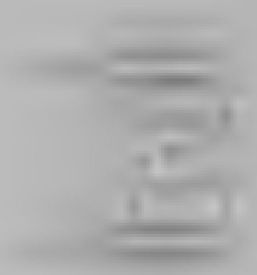
[illegible]don, Va.

[illegible]rant, Middlewich, and Joseph P[illegible]

[illegible]ited, United Kingdom

[illegible] Feb. 18, 1987, S[illegible]

[illegible]ication Uni[illegible]



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APPARATUS

Hideo Watanabe, and Nobuyoshi Nakajima, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa

Filed May 9, 1985, Ser. No. 732,111

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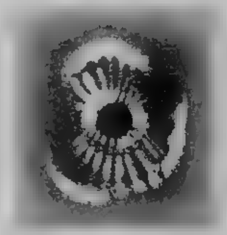

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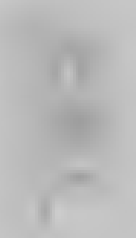


GAUGING SY

r John J. Ma

ONTENT AND BASIS WEIGHT OF PAPER SHEET
WITH A SUBMILLIMETER LASER

red R. Izatt, Northport, Ala.; Russell Boulay, Richard Gagnon, both of Cap-Rouge, Canada, and Bernard Drouin, Ste-Foy, Canada, assignors to The University of Alabama, Tuscaloosa, Ala.

ntinuation of Ser. No. 731,020, May 6, 1985, abandoned. This application Jul. 28, 1987, Ser. No. 78,050

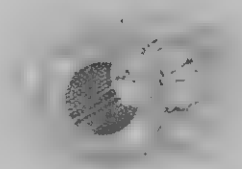
ONENTS OF A PET CAMER

g, 7903 Deer Meadow, Houston,
led Jun. 19, 1986, Ser. No. 87

4,755,680

LING APPARATUS

Columbia, Mo., assignor
sity of Missouri, Columbia, Mo.
Filed Apr. 27, 1984, Ser. No. 604,98
Int. Cl.⁴ G01T 1/16



bombardment by ionizing radiation, means scintillations to electrical outputs including llation sensing units disposed both along and e outside of the tubular and optically continuous neans for collimating the ionizing radiation for said

side, said group of cha
vard into said tubular ar
arallel directions

naging apparatus
ing an axis and

Kyoto, and Kenji Shibata, Kyoto, all of Japan
Shimadzu Corporation, Kyoto, Japan

dward T. Burgess, Carlisle, Ohio, assign

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4,755,681

[illegible]THOD FOR TUMOR DIAGNOSIS AN[illegible] [illegible]GEMENT FOR IMPLEMENTING THIS M[illegible]

[illegible] Leiner, Heinerscheid, Luxembourg, and Rudolf J[illegible] [illegible], Austria, assignors to AVL AG, Schaffhausen

[illegible]ION MICRO BEAM APPARATUS

[illegible] Kawanami, Kokubunji; Tohru Ishitani, Sayam[illegible] [illegible]tamura, Kokubunji, and Hifumi Tamura, Hachi[illegible] [illegible], assignors to Hitachi, Ltd., Tokyo, Japan

[illegible]a, all of Japan.

[illegible]

[illegible]00022[L]

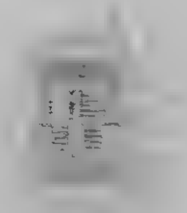
4,755,686

[illegible]RRADIATION A[illegible]

[illegible]shi Miyazaki; Hironori Muraki, and Teruo Araki, all of [illegible]saka, Japan, assignors to Sumitomo Electric Industries,

[illegible]led Oct. 29, 1986, Ser[illegible]

Int. Cl.⁴ G21[illegible]



[illegible]bushiki Kaisha, Tokyo, Japan

[illegible]led Nov. 2, 1987, Se[illegible]

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[illegible]

tarting an engine,
lunger connected
be operated by

[illegible]

magnetically attracting for

[illegible]

dt, Mich
6, 1987, Ser. No. 10

[illegible]

4,755,690

HYDROELECTRIC POWER INSTALLATION TURBINE GENERATOR APPARATUS THEREFOR

Henry K. Obermeyer, 36 Wickhams Fancy, Rivers Edge Rua
Collinsville, Conn. 06022
Feb. 13, 1987, Ser
Int. Cl.⁴ F03B 7/02; F

installation comprising

[illegible]

vels, the structure also having a gene
ide track extending from the entrance
onduit at the submerged base upwardly to an elevated
servicing point on the structure above the head water

[illegible]

nd the entrance

[illegible]

MODULAR, SMALL APPLIANCE CONTROL SYSTEM

Wildbrook La., Birmingham, Ala. 3

[illegible]

Nagel, Shaler Township, Allegheny Count
to American Standard Inc., North Hills, Pa
ntinuation of Ser. No. 631,967, Jul. 18, 1984. T

[illegible]

Suzuki, Yamato; Takehiro Akiyama, and Teruo
both of Kawasaki, all of Japan, assignors to Fujitsu
l, Kawasaki, Japan
Filed Feb. 7, 1985, Ser. No. 700,893
s priority, application Japan, Feb. 13, 1984
Int. Cl.⁴ H01K 3/01; 19/58

[illegible]

POWERS
COMPONENTS INTEGRATED ON SUBSTRATE

nd Bodig, Leinfelden-Echterdingen; Lot
enburg; Gerd Höhne, Ludwigsburg, and Hart
p. of Germany, assign
Fed. Rep. of Germany

This applic

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BINARY THRESHOLD COMPARATO
kett, Kokomo, Ind., assignor to Delco El
t, Kokomo, Ind.

Kinzer, Riverside, Calif., assign
Corporation, El Segundo, Calif
led Jul. 17, 1985, Ser. No. 755,858
3K 17/60 3/42 3/13, G02B 27

and depletion layer and

Fed. Rep. of Germany, assignor
Stuttgart, Fed. Rep. of Germany
Filed Feb. 25, 1987, S
aims priority, application Fed.

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4,755,…

…ARIABLE SPEED AC MOTOR

…ongming and Tao Fenghai, both of 106 Men 3, Building…
…suyuan Zhenlue Road, Beijing, China
…inuation of Ser. No. 846,…03, Mar. 31, 1986, abandoned…
…application Nov. 13, 1987, Ser. No. 120,168
…ority, application China, Apr. 1, 1985, 8510060…

…ichi Shikama, Saitama, Japan, assignor to Sanyo Electric
…, Ltd. and Kumagaya Seimitsu Co., both of, Japan
Filed May 8, 1987, Ser. No. 47,883
…n Japan, May 9, 1986, 61-…
…H02K 21/12

…er larger than the number of magnetic … said first magnetic poles array and a …

…hat the poles in …

…ashi Iijima; Tetsuo Endo; Yukio Miyamoto, and Kiyoka…
…Okamoto, all of Tokyo, Japan, assignors to NEC Corporation
Filed Jan. 6, 1987, Ser. No. 58…
Int. Cl.⁴ H02K 17/00

…in said slots as a three phase… …umber of said winding slots per… …on-integer; the pitch of said stator…

…ELECTRIC MOTOR
…, Japan, assignor to Aichi…
Filed Mar. 18, 1987, Ser. No. 27,387
…ority, application Japan, Mar. 19, 1986

Laurence P. Flora, Covina, and Michael A. McCullough…
…dena, both of Calif., assignors to Unisys Corporation

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1092
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UMI

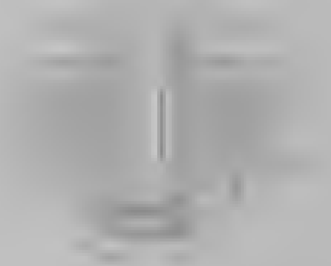
gnors to General Electric Corpor

Ser. No. 8

4,755,707
INPUT DEVICE
Nakaya, Tokyo; Hiroshi Takeuchi, Matsudo, and
geyoshi Katakura, Tokyo, all of Japan, assignors to Hitachi
letals, Ltd.; Hitachi Medical Corp and Hitachi, Ltd
kyo, Japan
Filed Dec. 22, 1986, Ser. No. 944,523
Japan, Dec. 25

d Granz, Oberasbach, and Bertram Sachs, Erlangen, both o
d. Rep. of Germany, assignors to Siemens Aktiengesell
aft, Berlin and Munich, Fed. Rep. of Germany
May 23, 1985, Ser. No. 737,519
pplication Fed. Rep. of Germany

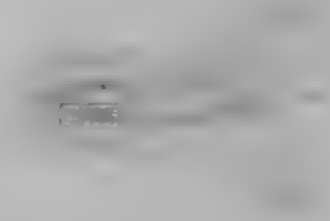
p flat surface and the side flat surf
provided with a groove through



ger, Eindhoven, Netherlan
ration, New York, N.Y.
led Jul. 11, 1986, Ser. No. 884,7
ity, application Netherlands, Jul

HAVING REDUCED LAMP V
Jacobus M. M. Claassens, and Gerard

th of Lexington, all of Ky., assig
oration, Danvers, Mass.



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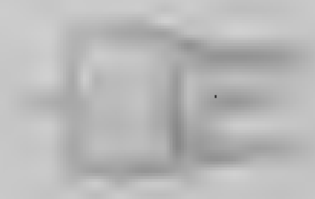
p surface and a sealed end portion of guration oriented within said opening id neck portion and including a protruding end adapted for engaging an internal surface of said rtion to stabilize said capsule within said reflector, psule further including a light source within said rtion and a pair of electrical conductors electr upled to said light source and projecting from sa

ssignors to North American Philips Corp.



genknecht, York, Pa.; John R. Anderson, Mang , and Joseph A. Guzikowski, York, Pa., assigno

der portion in a second direction opposite from said first tion, said skirt portion having a base and a summit, said being integral with said shoulder and having a diameter equa to said given diameter and said skirt summit terminating in plane wherein said plane forms an angle of about between 45 said longitudinal axis.

4,755,714

ECTROMAGNETIC DEFLECTION UNIT FOR A TELEVISION PICTURE DISPLAY TUBE

Albertus A. S. Sluyterman, Eindhoven, Netherlands, assignor to U.S. Philips Corp., New York, N.Y.

Filed Jan. 21, 1987, Ser. No. 6,081

Claims priority, application Netherlands, Feb. 13, 1986,

Int. Cl.⁴ H01J 29/76; H04N 9/29

E ACTIVATED PHOSPHOR FOR USE IN CRTS

rge W. Berkstresser, Bridgewater, and Joseph Shmulovich, Murray Hill, both of N.J., assignors to American Telephone & Company, AT&T Bell Laboratories, Murray Hill,

led Feb. 28, 1986, Ser.

4,755,716

FILTER FOR CRT SCREEN

Yuji Hayafune, Tokyo; Hideo Amemiya, Yokohama, and Sugihara, Zusi, all of Japan, assignors to Mitsui Toatsu C icals, Inc., Tokyo, Japan

Filed Jul. 16, 1987, Ser. No. 74,037

Claims priority, application Japan, Jul. 21, 1986, 61-169678; Aug. 4, 1986, 61-181856; Aug. 4, 1986, 61-181858; Sep. 3, 1986, 61-205896; Nov. 11, 1986, 61-266530; Nov. 11, 1986, 61-266531, Dec. 24, 1986, 61-306208; Jan. 12, 1987, 62-003352 1987, 62-003353; Mar. 16, 1987, 62-058756

Int. Cl.⁴ H01J 29/89

4,755,717

FLUORESCENT DISPLAY APPARATUS

Kubimoto, Yokohama; Kiyoshi Morimoto, and Hitosi, both of Mobara, all of Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

Continuation of Ser. No. 566,775, Jan. 3, 1984, abandoned which is a continuation of Ser. No. 422,358, Sep. 23, 1982 abandoned, which is a continuation of Ser. No. 222,622, Jan 1981, abandoned. This application May 867,611

Claims priority, application Japan, Jan

Int. Cl.⁴ C09K 11/54

U.S. Cl. 313—496 5 C

a fluorescent display apparatus for effecting an lu

aluminum concentration is more higher than the silver concentrat not include nonluminance ele within the phosph

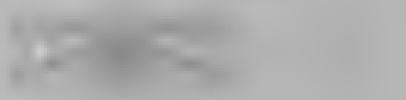
wherein said fl nance thresho

4,755,718

HIGH ANGLE, AND GRADED AC

F. Vincent Patrick, Laurel, Md., assignor of America as represented by the Secretary Washington, D.C.

Filed Nov. 26, 1986, Ser. No. 935,



FLOW

Rudolf Lumpnecher, Topsfield, Mass search Laboratory, Inc., Everett, Mass

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being
the

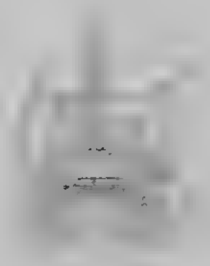
4,755,721

DIUM VAPOR
UNSATURATED VAPOR PRESSURE TYPE CHARACTERISTICS

Yoshiyuki Okada, Ageo; Hiroyoshi Yokome; Akira Kosasa, da; Tomoyuki Habu, Kawaguchi, and Yasu Kitamoto, all of Japan, assignors to Iwa

ION PLASMA ELECTRO

takalopoulos, Pacific Palisades,



positioned in said second chamber relationship from said housing having a secondary electron emissive surf means for applying a high negative voltage cathode and said housing to cause said cat positive ions from said first chamber to said seco impinge on said surface of said cathode and to surface to emit secondary electrons; lly conductive electron transmissiv m opening in said housing at the facing said cathode, said foil bei the housing to constitute an anode he secondary ele ctron beam, y conductive extractor grid mount amber adjacent to the secondary e of said cathode and connected t an electrostatic field at said surface to electrons therefrom to pass through the open grid and into said first chamber, said extractor grid being further characterized as possessing a variable surface depth proportional to said electrostatic field within said first chamber, such that any variations in the h of said electrostatic field are substantiall ing a substantially uniform beam from said cathode through said

LAMP POWER SUPPLY WI
PREVENTION CIRCUIT

sikora, Mesa, Ariz., assignor to Tomar Electronics, Inc., Tempe, Ariz.

ontinuation-in-part of Ser. No. 794,415, Nov. 4, 1985, Pat. No. 4,682,081. This application Apr. 24, 1987, Ser
Int. Cl.⁴ H05B 41/29, 41/34

Telefunken Electronic GmbH, Heilbronn, Fed

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UMI

NIGHT VISION GOGGLE

William A. Kastendieck, Wylie, and Darrell E. Lee, Richardson, both of Tex., assignors to Varo, Inc., Garland, Tex.

94. This application Feb. 27, 1987, Ser. No. 944,012

Int. Cl.⁴ H01J 31/50

[illegible]

4,755,727

FIELD DEFLECTION CIRCUIT FOR USE IN

DISPLAY DEVICE

Edward M. Ponte, Eindhoven, Netherlands, as

Philips Corporation, New York, N.Y.

Filed Nov. 12, 1986, Ser. No. 929,93

Claims priority, application Netherlands, N

ed deflection

d to the said o

ue of a parabol

e trace period

4,755,728

CONDUCTOR

D FAN USING THE S

16 Higashi-Ohizumi, Nerima-ku,

led Sep. 15, 1987, Ser. No. 96,53

ature and wound around the res

nd energizing circuit

mbers reciprocatingl

4,755,729

METHOD OF CONTROLLING A CONTRO

WITH IMPROVED ROBUSTNESS TO DISTURB

Makoto Gotou, Nishinomiya, Japan,

Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 6, 1987, Ser. No. 22,

Int. Cl.⁴ H02P 5/00

rror signal producing step for producing a

orresponding to the detected signal of said

Daniel E. Shprecher, Highland Lakes,

Heat-Timer Corporation, Fairfield, N.J.

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UMI

Ronald W. Niemund, Downey,
Donnell Douglas Corporation.

[illegible]

ad charging
able constant current source with [illegible] a first PNP transistor having a base [illegible] emitter connected to a voltage so[illegible] resistor, (b) a second PNP transistor having an emitter connected to the base of the first transistor, a collector connected to the collector of the first transistor, and a base, and (c) a comparator having an output connected to the base of the second transistor through a second resistor, an inverting input connected to the emitter of the first [illegible]

said sample-and-hold c[illegible] respect to time so that [illegible] tion while the [illegible] a differential a[illegible]

4,755,734
[illegible] FOR FOR VFH[illegible]
GENERATOR
[illegible] and Shiro Iwatani, both of Hyogo, Japan,
Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 28, 1986, Ser. No. 923,99[illegible]
Claims priority, application Japan, Oct. 29, 198[illegible]

[illegible]

Corporation, Rockford, Ill.

2) for disabling [illegible] that said swit[illegible]

first discrete dete[illegible]

[illegible]

Karata, Hikone, Japan, assignor
rks, Ltd., Osaka, Japan
Filed Feb. 13, 1987, Ser. No. 14,33[illegible]
application Japan, Feb. 20, 198[illegible]

[illegible]

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4,755,737

L FOR VEHI

RATOR

Iwatani, both of Himeji, Japan,
ki Kabushiki Kaisha, Tokyo

Ser. No. 923,995

COMPENSA

shi Uchino, and

oltage converter having an input terminal for connec a direct voltage supply source and an output terminal he supply of a converted direct voltage obtained across a capacitor by switching the semiconductor switch between first and second supply voltage terminals via its switching input, wherein the input terminal is connected via a coil to a series point between the pair of complementary field effect rs and the output terminal is connected to one of the oltage terminals in the series arrangement of the comry field effect transistors, the said capacitor being d between the supply voltage terminals or between nput terminals

4,755,740

CIRCUIT FOR POWER PULSE AMPLI
STABILIZATION IN RADAR TRANSMITTE
MODULATOR OR THE LIKE

ichard S. Loucks, Northridge, Calif., assignor to
a division of ITT Corporation, Van Nuys, Calif
Filed Jun. 1, 1987, Ser. No. 56,022
Int. Cl.⁴ G05F 1/613

switching in series between

eison, San Jose, Calif., assignor
ation, Milpitas, Calif.
Filed Nov. 18, 1986, Ser. N

use d
prov

Agoston Agoston, Beaverton, John B. Rettig, Aloha; Stanley Kaveckis, Aurora; John E. Carlson, Portland, and Andrew Finkbeiner, Beaverton, all of Oreg., assignors to Tektr

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J James R. Bredow, La I

[54] 4,755,745

INCOHERENT LIGHT OPTICAL PRO

Jonathan D. Cohen, Hanover, Md., assignor to represented by the George G. Mead

Jose, and Sando

and carriage drive means for translating ween a parked position in which a test p d adjacent and clear of said platform an tions along a radius of said platform, and locams associated with said carriage means for

means coupled to said platform and ntrolling the operation thereof, and etween said control means and sa

4,755,747

D A PROBE C OHEREWITH

Japan

Filed Jun. 12, 1985, Ser. No. 743,818

priority, application Japan, Jun. 15, 1984, 59-12 84, 59-124525

ible stage are m

Paul S. D. Liu, Murray Hill, N.J tions Research, Inc., Livingston

nama; Toshihiro Ishizuka, Inagi, and Kazuyuki I)

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rol means for supplying a corrected

ting and outputting the

lordword H.

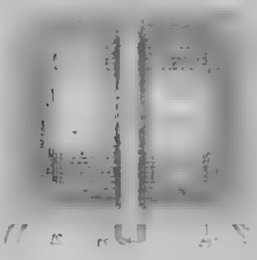
lel stripes, and

rallel stripes, said lig

ARY POSITION TRA

r to Allen-Bra

Filed Dec. 29, 198



VISUALIZATION

Gerald L. Fitzpatrick, 19226 SE. 46th Pl., Issaquah

98027, assignor to Gerald L. Fitzpatrick, Issaquah, W

Continuation-in-part of Ser. No

5,625,167. This application

Int. Cl.⁴ G01N 27

l target material, said light gene

in proximity to said target mater

ans disposed about

and applying a v

terial and to sa

FLAW DETECTION

Chern, West Chester, Ohio, assign

1. An apparatus

anning apparatus connected t

said transducer for effecting

le components of the edd

upled to said scanning ap

Filed Apr. 13, 198

e for detecting a

METHOD TH

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UMI

4,755,757

DETECTION SYSTEM
ING THE FATE OF FLUID
HROUGH A GEOMEMBRANE

oper, San Antonio, Tex., assign
ch Institute, San Antoni
Filed Mar. 6, 198

eans having

ating means in synchro
aid data generating means decoding said
gnals to produce said plurality of data sig-

means which receives the plurality of data
id data generating means and samples the
ta signals to output in parallel data signals in

ta in parallel from said s

IATIC DIAPHRAGM CONTROL AMPLIFIE
D WITH OBJECTIVE FOR CCTV CAMERA

asayuki Arai, and Terumi Ogasawara, both of Tokyo, Jap
assignors to Asahi Seimitsu Kabushiki Kaisha, Tok
Filed Sep. 30, 1986, Ser. No. 913,257
ims priority, application Japan, Sep. 30, 1985
Int. Cl.⁴ H04

SIGNALS OF THE SAME FREQ

Claude Perraudin, Meudon, France, assign
tique, France
Filed Jan. 7, 1987, Se
Claims priority, application France
Int. Cl.⁴ H04

Hebert T. Ray, Jr., West C

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[illegible] ...ne of first and second signals each [illegible] ...le related to the instantanous modula- [illegible]

[illegible] and second signals [illegible]

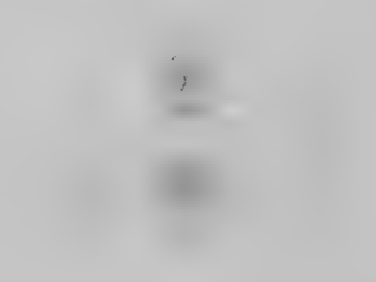
when said demodulator is put into a pull-in state with s[illegible] and said second digital signals having a pull-in phase a[illegible]

[illegible] he status of said [illegible]

[illegible]

[illegible]ETIC WAVE A[illegible] GENERATORS

[illegible] Rosenberg, Moshav Beit Shearim; Jacob [illegible] Jacob Ben-Aryeh, Haifa, and Joshua Felstein [illegible]el, assignors to Technion Research & Developme[illegible]n Ltd., Haifa, Israel
Filed Nov. 20, 1981, Ser. No. 323,693



[illegible]

DIFFERENTIAL INPUT S[illegible]

[illegible] Ferland, Nashua, N.H., assign[illegible]

[illegible] common power [illegible]

[illegible] ting a differen[illegible] comprising [illegible]

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UMI

ING THE FORM

Ryoichi Shimokawa; Seiichi Ueda, both of Takasaki; Yasu
Kamata, Hitachi; Kenkichi Yamashita, Katsuta; Kazuo Kato
Tsukamura, and Hideo Sato, Hitachi, all of Japan, assignors
Hitachi, Ltd., Tokyo, Japan
Filed Apr. 3, 1986, Ser. No. 847,721
priority, application Japan, Apr. 3, 1985, 60-69015

5,160
R WITH LED
ECTION
signor to General

nsmission line
de and at a se

switch means coupled for short-circuiting said
ansmission line at a point λ/4 at said frequency

control means coupled to said controllable switch means for
electively operating said controllable switch means be

Groom, Palm Bay, Fla., and James P. Fucino, Jr., West
Pa., assignors to Harris Corporation, Melbourne, Fla.
Filed Aug. 13, 1986, Ser. No. 896,097

DC bias curre
means for rece
for cancelling sa
nt of said can

eans having an

4,755,
QUALIZING

assignors to OKI Electric Industry Co., Ltd., Tokyo, Ja
Filed Mar. 6, 1987, Ser. No. 23,107
Claims priority, application Japan, Mar. 12, 1986, 61-5
Int. Cl.⁴ H03G 3/2

Sallen Key low-pass circuit connected to sa
rcuit, said Sallen-Key low-pass circuit ha

eans for amplify
ereof, said ampl

ut terminal of
the peak level

Satyapal S. Khanna, San Jose, Calif., assignor to A
Santa Clara, Calif.
Filed Jun. 5
Int. Cl.⁴ H03G
31—10

A BURST PHASE-MOD
nichi Ohmagari, Tokyo, Japan,
on, Japan
Filed May 28, 1987 Ser. No.
aims priority, application Japan, Ma

Continuation-in-part o

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6, Ser. No. 677,842

ve elements each element terminating and con

balun by a phase

rete having a first and

strip broadside

hed by two str

and an upper gu

es said lower guide being closer to said upper guide tha
to said contiguous ground conductive plane; and thus
ach of said lower guide and said upper guide in one secti
being essentially characterized by a diversity of distan
of said lower and upper guides from said contig

ve guides from

said unbalanced
ced input guide

BROADBA
SYSTEM
ti, State College
State College,
Mar. 6, 1987

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1988
UMI

PRE-CODED COMPENSATION DATA

eigo Ito, Tokyo; Yoshikazu Murakami, Kanagawa; Tomikazu Watanabe, Tokyo, and Takahiro Ohgihara, Kanagawa, all of Japan, assignors to Sony Corporation

Filed Sep. 28, 1987, Ser. No.

priority, application Japan,

4,755

ICAL SWITCH

er, Neuhausen, Fed

ert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT/DE86/00391, § 371 Date Jun. 4, 1987, § 102(e) Jun. 4, 1987, PCT Pub. No. WO87/02834, PCT Pub Date May 7, 1987

PCT Filed Sep. 23, 1986, Ser. N

Claims priority, application Fed. Rep

ic switch for starting

D ACTUATOR HAVING PERMANENT MAGNET MEANS

11-6-406, Tsurukawa, Machida

VOL 1092 ISS 1 JL 5 1988 UMI

SURFACE M

assembly, comprising:

Attorney, Agent

4,755,786

THERMOSTAT

Hillsboro; Robert F. Stu

ller, Tigard, all of Or

leveland, Ohio

25, 1987, Ser. N

HOIH 37/

ect actuation m

4,755,787

ING A BIMET

Dec. 7, 1987, Ser. No

t. Cl.⁴ H01H 37/

Filed Aug. 23, 1987,

Int. Cl.⁴ B6

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Filed Jul. 2, 1985, Ser. No. 750,962

after limiting the speed of said
rmined speed which is less than

includes a spa
means coupled

setting means further includes
means for producing a signal

oil having an output

apan, assignor to Honda Giken Ko
o, Japan
2, 1987, Ser. No. 119,50
tion Japan, Nov. 14, 198

r. No. 744,195, Jun. 13, 1985

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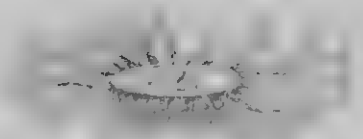
…FOR MINIA… …ROCESSING



g displaceable in a direction tra…
t between the extended and r…

, Largo, Fla.

May 2, 1986, Ser. No.

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1092
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1988
UMI

ECTOR SECUR

Melbourne, Australia
621,543, Jun. 18, 1984, aban

Int. Cl.4 G08B 13/16

BRAKE M
Shockley, Montgomer

Md., assignors t

ed May 27, 1987, Ser.
Int. Cl. B60Q 1/

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5
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UMI

4,755,808

AUTOMATIC CAPTURE OF POINTING DEVICE
ACTIONS IN A KEYSTROKE PROGRAM

rland R. Bullock, Austin; Allen W. Heath, Cedar Park, and Ronald K. Sheppard, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

iled Jun. 13, 1986.

Int. Cl.

4,755,809

ROLLING W

E DATA PRO

Ikegami, Inagi, and Yoshio Hayakawa, Kawaguchi, pan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 11, 1983, Ser. No. 540,640

ority, application Japan, Oct. 11, 1982, 57-17

7-177805

Int. Cl.

---

cursor key if there is a portion of the active window in the selected direction of cursor movement,

b) determining when the cursor reaches a boundary row

4,755,810

FRAME BUFFER MEMOR

n, Wilsonville, Oreg., a

n, Oreg.

and Casio Electronics Manufa

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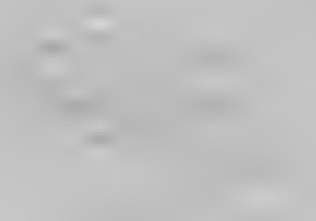

g into said attribute propagation memory
ntrol bit for controlling visual attribute code

enerator means controlled from at least said
ieans for contro

eter locations

4,755,815

ELECTRONIC IDENTIFICATION DEVICE

Jean-Louis Savoyet, Le Mayrie, F-38770 La Motte d'Ave
and Alain Molé, 138, Avenue Ambroise Cro
Saint-Martin d'Heres, both of France

Filed May 11, 1984, Ser. No. 609,31

ation France, May 11, 198

RADIO PAGING RECEI

Michael J. DeLuca, Boca Raton, Fla., assig

Filed Oct. 20, 1986, S

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UMI

m expander means for directing

r directing received radiation onto a detector

4 755,819

REFLECTOR ANTENNA AN
FABRICATION

Jaren C. Bernasconi, and Karl Kotacka
zerland, assignors to Contraves AG, Zi
Filed May 5, 1986, Ser. No. 859,
y, application Switzerland,

4,755,820

ANTENNA DEVICE

Paul M. Backhouse; Norman Apsley, and Huw D. Rees
Worcester, England, assignors to The Secretary of Sta
Defence in Her Britannic Majesty's Government
United Kingdom of Great Britain and Northern Ireland
don, England
Filed Aug. 4, 1986, Ser. No. 892,42
Claims priority, application United Kingdom,
Int. Cl.⁴ H01Q 1/32

s separated by th
und plane dispo
a patch disposed

ast twice that of the
ducing with perpen-

NAR ANTENNA WITH PATCH RADIATOR

shiko Itoh, Sapporo, and Kazutaka Hidaka, Yokohama, both
of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki,
Japan
Filed Jul. 18, 1986, Ser. No. 886,676
Claims priority, application Japan, Jul. 19, 1985, 60-158

guide having,

to Toyota Jidosha Kabushiki Kaisha, Toyota, J
Filed Aug. 4, 1986, Ser. No. 893,08
Claims priority, application Japan, Aug. 9, 19

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AND USE OF SUCH AN ANTENNA IN A TRACKING
RADAR

Crochet, and Francois Gautier, both of Paris,
assignors to Thomson CSF, Paris, France
Filed Jun. 3, 1983, Ser. No. 500,173
application France, Jun.
Int. Cl.⁴ H01Q 3/00

rimary source fed by said waveguid
pect to the focus of the parabolic refl
ing a thin metal
said waveguid

COLLIMATED OFFSET
REFLECTOR ANTEN
Jagunmohan B. L. Rao, Lanham, Md., assignor to The Unit
States of America as represented by the Secretary of the Nav
Washington, D.C.

rray feed source
over a large scan
ubreflector, the central cross section of which
forms to a first set of points (X_k, Z_k), and
main reflector, the central cross section of
smoothly conforms to a second set of points (X'_k,

wherein the central cross sections of said subreflector and said main reflector are concave to each ot
shapes that reflect two initial collimated beams
from said phase array and incident on the subreflector at two initial collimated directions into two corresponding final collimated beams at two final directions after being
m the subreflector to the main reflector and
lected from the main reflector,
central cross sections of said subreflector and main reflector are determined by rays in initial beams incident upon said subreflector from two incident directions and reflected from said main reflector in corresponding two final beams in two final directions, the rays in each incident beam and final beam being parallel within each beam, the pathlength of rays measured from a perpendicular wave front in an incident beam to a perpendicular wave front in the corresponding final beam being a constant, and the rays being reflected from said subrefle
and main reflector according to the laws of geomet

e reflector system is orientated in a ri
x, y, z, axes coordinate system fixed in spa
tween the main reflector and the subreflector
positive in the direction toward to the subre-
ndicular to the subreflector at its highest point
axis is positive in the direction away from the subre
nd
defined as the ray pathlength between the wavefronts in an initial beam and its corresponding final beam,
is defined as a final bicollimation angle determinative
the scanning range of said dual reflector antenna
is defined as
the propertie

CIRCULATOR/ANTENNA DEVICE
Richard A. Stern, Allenwood, and Richard W. Babb
ven, both of N.J., assignors to The United States of
represented by the Secretary of the Army, Washingto

ontinuation-in-part of Ser. No. 621,119, J
4,554,553. This application Nov. 8, 1985
The portion of the term of this patent subsequ
2002, has been disclaimed.
Int. Cl.⁴ H01P 1/36

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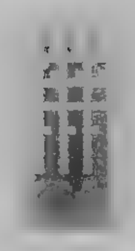
4,755,829
OWER COMBINES
te, and Donald R
The United S

4,755,830
ANTENNA POLE MOUNTING BRACE
ASSEMBLY
k, 5335 Egbert, Houston, Tex. 7706?
d Nov. 15, 1985, Ser. No. 798,?68

ted rotational

4,755,831
ER FULL-COLOR THERMOSENSIT
SHEET RECORDING METHOD
Hiroshi Sakamoto, Numazu, Japan, assignor to F
Ltd., Tokyo, Japan
Filed Jun. 30, 1986, Ser. No. 879,88
priority, application Japan, Jun. 28, 1985, 60-142755
Int. Cl.⁴ G01D *15/10, 15/34,* G03C *5/16*
346—1.1 7 C
a multi- and full-color thermosensitive re



pal recording is p

CORDING DISTANCES TRA
ONAL AND BUSINESS USE
Michael P. Gulas, Port Coquitlam, and Carolyn Gelb
peg, both of Canada, assignors to Carolyn Gelbor
Ca
Filed Oct. 11, 1985, Ser. No. 786,6??
on of the term of this patent subsequent
2002, has been disclaimed.

, means for connecting said first
le for automatically receiving the
e of a distance traveled by the vehicle

THERMAL TRANSFER PR
Naohide Tanigawa, Hirakata; Hiroshi Ton
Kunimitsu, Yawata; Hiroichi Yoneda, Kyoto, a
Genno, Hirakata, all of Japan, assignors to Sa
Co., Ltd., Osaka, Japan
Filed Nov. 13, 1986, Ser. No. 929,??
Claims priority, applica
178418[U]; Jan. 10, 1986
10492[U]; May 9, 1986, 61-70494[U]
Int. Cl.⁴ G01D

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nors to Sanyo Electric
led Aug. 15, 1986, Ser.
Japan, Aug. 20, 1985.
5/10 B41J 5/26

[illegible]

WITH PRINTING WHEELS AND
PRESSION HAMMER

ugihara; Hajime Oda; Tadashi Ishikawa; Atsushi
saml, and Toshiya Tamura, all of Yotsukaido, Japan, as
nors to Seikosha Co., Ltd., Tokyo, Japan
Filed Sep. 24, 1986, Ser. No. 911,250
pplication Japan, Sep. 24, 1
1985, 60-145609[U]; Sep. 2

[illegible]

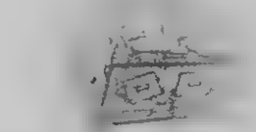
mechanism responsive to an output from said

[illegible]

typing wheel assem

CARTRIDGE AND CARRIAGE ASSE

ong C. Ta; Todd L. Russell, both of San Diego, and Anthony
V. Ebersole, Poway, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
ay 5, 1987, Ser. No
t. Cl.⁴ G01D 15



[illegible]

mechanism (56)

[illegible]

l assembly at sa

4,755,837

DIRECT ELECTROSTATIC PRINTING APPARATUS
ND PRINTHEAD CLEANING STRUCTURE THEREFOR

red W. Schmidlin, Pittsford, and John D. Sotack, Rochester
both of N.Y., assignors to Xerox Corporation, Stamford
Conn.

[illegible]

nsport toner particles
ed by said delivery syst

[illegible]

whereby momentum transfer
caused to bombard said side
have accumulated on said s

[illegible]

CLOSE-UP CAMERA APPA
enney, 108 Aspen Dr., Woodbu
Filed Apr. 9, 1987, Ser. No
Int. Cl.⁴ G03

[illegible]

[illegible]

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said first dire

4,755,840
US FOR THE VIEWING OF TH
E OF A PHOTOGRAPHI
MERA
trasse 65, 8038 Zürich, Switzerland
28, 1987, Ser. No. 90,984
plication Switzerland, Sep. 3, 19

4,755,841
IALIZING A I
assignor to Eastman Kodak Com-

PARATUS FOR INITIALIZING A FRAME COU
FROM A RANDOM SETTING
id Barclay, and Lee D. Oldfield, both of Rochester,
ssignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 6, 1988, Ser. No. 141,434

ializing a frame counter in a camera to a
m a random setting, wherein (a) a take

ounter includes blocki

MPERATURE CONTROL SYSTEM FOR A
PHOTOGRAPHIC PROCESSOR
Walter D. Foley, Rochester, N.Y., assignor to Eastman Kodak
Company, Rochester, N.Y.
Filed Jun. 12, 1987,
Int. Cl.⁴ G03

irst tank containing a heated first processing
econd and third tanks containing second and thi
ing fluids, respectively; and
temperature controlling
ture of one of said se
controlling the temperatures of both of th
third processing fluids,
said temperature controlling means including a
perature sensor disposed in thermal relationship
of said second or third processing fluids;
id temperature controlling means further includ
and second heating elements disposed
ship with and having heat outputs

4,755,843
AUTOMATIC DEVELOPING DEVICE
Atsushi Tsuchiya, Kitakami, and Yasuo Matsuoka, Kawasaki,
both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Apr. 14, 1986, Ser. No. 851,206
Claims priority, application Japan, Apr. 30, 1985
Int. Cl.⁴ G03D 5/04, B08B 3/02, H01L 2

4,755,842
FLASH PHOTOGRAPHY SY
hoyuki Taniguchi, Tondabayashi; Masu
Takanobu Omaki, Sennan; Hiroshi Hosomizu,
take Niwa, Sakai; Toru Inoue, Toyonaka, and Mi
Sakai, all of Japan, assignors to Minolta Camer
Division of Ser. No. 544,870, Oct. 24, 1983
This application Nov. 25, 1985, Ser
Claims priority, application Japan, Oct. 2
190996; Dec. 14, 1982, 57
e term of this patent subs
2002, has been disclaimed
nt. Cl.⁴ G03B 7/00, 15

means for stor
DC DC conv
for emitting
g means

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1988
UMI

NG PLATE HO
OF IMAGE FORMING DEVICE

[illegible] Osaka, Japan, assignor to Mita Industrial

[illegible] holding construction of [illegible]

4,755,847
[illegible] LATENT IMAGE DEVELOPING
APPARATUS

[illegible] ushiro, Kanagawa; Toshio Kaneko, Tokyo; [illegible] Takeda, Kanagawa; Yoshihiro Ogata, Kanagawa; T[illegible] Takaya, Kanagawa, and Atsushi Shinozaki, Ch[illegible] Japan, assignors to Ricoh Company, Ltd., Tokyo

4,755,848
ANTI-GOUGE STEEL

[illegible] J. Lam[illegible] N.Y., assignor to [illegible]

the one end portion of the stiffener having portions defining [illegible]

4,755,849
[illegible] R AN IMAGE [illegible]
APPARATUS

Noriyoshi Tarumi, Hachioji; Kiyoshi Kimura, Iruma, and K[illegible] chi Gunzi, Hachioji, all of Japan, assignors to Konishiro[illegible] Photo Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 763,303, Aug. 5, 1985, abandoned, which is a continuation of Ser. No. 293,867, Aug. 18, 1981, abandoned. This application Oct. 21, 1986, Ser. No. 921,678

Claims priority, application Japan, Aug. 25, 1980, 55-116691

Int. Cl.⁴ G03G 15/20

[illegible] s into pres- [illegible] termediate [illegible] means, the [illegible] aped heat generating mem[illegible] pressing means so that said [illegible] ace of said pressing means after being urged t[illegible] ing means by the heat generating member and [illegible] ontact with said intermediate image carrier, [illegible] ting member being disposed [illegible] eying path for the transfer she[illegible] ember being brought into con[illegible]

ELECTROSTATIC RECORDING APPARA[illegible]
[illegible] NCLUDING A CONTROLLED DEVELOPER D[illegible]

[illegible] ji Suzuki, Yokohama; Kouki Kuroda, and Jyoji Nagahi[illegible] both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 673,287, Nov. 20, 1984, which is a division of Ser. No. 338,045, Jan. 8, 1982. This application Oct. 21, 1986, Ser. No. 921,103

Claims priority, application Japan, Jan. 13, 1981, 61-2637; [illegible] 13, 1981, 61-2639; Jan. 13, 1981, 61-2641; Jan. 14, 19[illegible] Jan. 14, 1981, 61-3255; Jan. 14, 1981, 61-3257; Jan [illegible]

[illegible] veloping bias voltage, second [illegible]

[illegible] ring a developing time of said electro[illegible] apply the bias voltage generated [illegible]

[illegible] suzumi Ito, Toyohashi, Japan, assignor [illegible] Kabushiki Kaisha, Osaka, Japan

Filed Sep. 10, 1987, Ser. No [illegible]

Claims priority, application Japan [illegible]

Int. Cl.⁴ G03G [illegible]

U.S. Cl. 355—14 R

1. A magni[illegible] a magnifi[illegible]

[illegible] means adapted for judging [illegible] belongs in a predeterm[illegible]

[illegible] control means for contro[illegible] varying mechanism us[illegible] lated result as a magnifi[illegible] memory capable of storing the [illegible] means for receiving a command [illegible]

Hiroshi Fujita, Yamatokoriyama, Japan, [illegible] Kabushiki Kaisha, Osaka, Japan

Filed Mar. 4, 1987, Ser. No. 21,64[illegible]

Claims priority, application Japan [illegible] 28, 1986, 61-284886; Nov. 29 [illegible]

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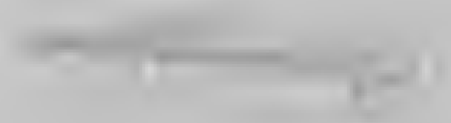
suuki Dohi, and Yoji Kurayama, all o
gnors to Casio Computer Co., Ltd. and
lanufacturing Co., Ltd., both of Tokyo,

T PRINTE
asse 10, 6484 B

pr. 1, 1987, Ser. No. 32
pplication Fed. Rep. of

arward edge p

said mat in its wound condition below a
r housing portion including means for



said rear edge portion, wherein said pivoting
ncludes pivot arms disposed along sides of said

4,755,855

ORMING APPARATUS WITH
POSITION CORRECTING FUNCTION

Junji Watanabe, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki-shi, Japan
Filed May 29, 1986, Ser. No. 868,281
ims priority, application Japan, May 30, 1985, 60

eans for optically scanning a
rginal table to obtain a scanned

n detecting means for de

l in the directio

g means for st
detected by sa

l means for generating t
in response to the post

rom said positior

correcting data generated by said firs
positioning means which substantially
position on said image receiving medium by

4,755,856

ZNSE GREEN LIGHT EMITTING DIOI

un-ichi Nishizawa, c/o Zaidan Hojin Handotai Kenkyu Shinkokai, Kawauchi, Sendai-shi, Miyagi-ken, 980, Japan, assignor to Jun-ichi Nishizawa, Sendai, Japan
Filed Jul. 5, 1983, Ser. No. 511,005
Claims priority, application Japan, Jul. 6, 1982, 57-1180.
The portion of the term of this patent subsequent to Aug 1
2001, has been disclaimed.
Int. Cl.⁴ H01L 33/00

rmined Te/Sc

gion of a conductivity type opposite to the

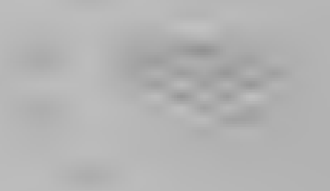
85

HETEROSTRUCTURE SEMICONDUCTOR I

erhard Abstreiter, Grenoble, France; Klaus Ploog, Stuttgart, and Albrecht Fischer, Loechgau, both of Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V., Fed. Rep. of Germany
ontinuation of Ser. No. 136,321, Apr. 1, 1980, abandoned. Th
application Nov. 18, 1982, Ser. No. 442,719
Claims priority, application Fed. Rep. of Germa
979, 291

rer of a first semicondu

g an energy level less favorable than the ad
vels of the first semiconductor material sc



orge H. B. Thompson, Sawbridg
Harlow, both of England, ass
Technology Center, Roan
Filed Aug. 22
Claims priority, applicat

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5 ESE

CTION TRANSISTOR AND ETHOD FOR MANUFACTURING THE SAME

uki Soda, Yokohama, and Satoshi Takayama, Kawasaki of Japan, assignors to Kabushiki Kaisha Toshiba, Kawa , Japan

Filed Sep. 25, 1986, Ser. No. 911,440

ad first regions, and said top surface of between said adjacent two of said first

n said fourth semiconducto

ictor layers are made of amor

l second semiconducto

cting said third semicor

4,755,860

AVALANCHE PHOTODETECTOR

Allam; Federico Capasso, both of Westfield, and Alfred ho, Summit, all of N.J., assignors to American Telephone Telegraph Company, AT&T Bell Laboratories, Murray N.J.

Filed Aug. 5, 1986

posed therebetween a superlatti

4,755,861

LIGHT FIRABLE THYRISTOR

Hubert Patalong, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 199,521, Oct. 22, 1980, abandoned

This application Aug. 19, 1983, Ser. No. 5

Claims priority, application Fed. Rep. of Ger

A light firable thyristor comprising semiconductor body having an N-er the body contacted

id N-emitter layer comprising at least two partial layers one of which comprises a light active semiconductor

g separate electrode parts allo- r and electrically connected in

er and the P-type base layer tial device firing to provide i

at other times

type lying between the first and secon is covered by a gate electrically insu spect to the semiconductor body uconductor region being provid l by each of the partial layers

ch MIS structure with the other

Satoshi Maeda, Yokohama, J Calif., assignors to Kabu Japan

Continuation of Ser. No. 601,373, Apr. 17, 1984, abu

This application Aug. 15, 1986, Ser. No. 895,59

Claims priority, application Japan, Apr. 21

Apr. 21, 1983, 58-70427; Apr. 21, 1983, 58-70

D TRIAC STRU CONTRO

Louis, and Jean P. M e, assignors to SGS-Thomson Microelectronics

ed Dec. 9, 1985, Ser. No. 806,494

ty, application France, Dec. 11, 1984, 84 18925

Cl.⁴ H01L 29/747, 27/12, 29/06

st metallization covering sai

second metall said diac being aid first, secon nd metallizatio

izumi, Tokyo, Japan, assignor a, Kawaski, Japan

ation of Ser. No. 811,464, Dec

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tively removed

face of said first

end ps,

BILIZING POLYCRYSTALLINE ONDUCTOR LAYERS

Richard B. Gregory, both of Phoenix, and rker, Scottsdale, all of Ariz., assignors to Motor- aumberg, Ill.

ate and p

ystalline

centration in the range

4,755,866

ELECTRONIC CIRCUIT MODULE

Marshall, Avon, and Boyd W. Rhodes, Glastonbury of Conn., assignors to United Technologies Corporation ford, Conn.

Filed Feb. 27, 1987, Ser. No. 19,915

Int. Cl.⁴ H05K 7/14

8 Clai

a plurality of layered decals, each layered decal overlay chip,

each decal having an overlay portion which overlays only

g portion extending outwardly from the

f the decal.

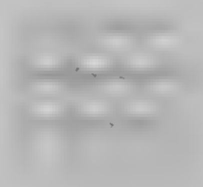
h comprised of a plurality of layers formed of

; and insulating material

yer containing bonding p

cations matching bonding pads of the underly-

second grid layer having conductor strips in



onductors in at least one of the

in at least one of the layers, a

ting selected portions

th a desired electr

dispersed between the

, and

rtion comprised of a plurality of layers having

s extending outwardly from the overlaying

nd a plurality of pads connected t

d for connecting electrically to

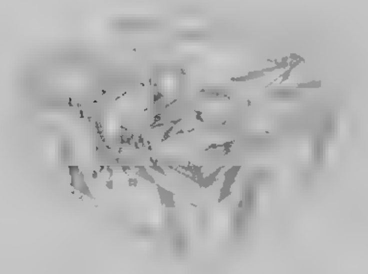
4,755,867

VERTICAL ENHANCEMENT-MODE GROUP III-V COMPOUND MISFETS

Chu-Liang Cheng, Piscataway, N.J., assignor to American Telephone and Telegraph Company, AT&T Bell Laboratories, Murray Hill, N.J.

Filed Aug. 15, 1986, Ser. No. 896,772

Int. Cl.⁴ H01L 29/78



field-effect transistor comprising

I-V compound conductive body having an

e and a pair of major surfaces,

ound semi-insulating epitaxial blocking

e of said major surfaces

blocking layer and said conductive

ove which extend therethrough to said

said one wall, and

ource and drain electrodes formed on said transi

said source and drain electrodes being formed on said other major surface of said body and the other being formed on said conductive layer adjacent said gate elec-

4,755,868

HIGH BRIGHTNESS PROJECTION TV SYSTEM USING ONE OR MORE CRTS WITH A CONCAVE PHOSPHOR SURFACE ACTING TO CONCENTRATE LIGHT INTO LENS SYSTEM

Marvin P. Hodges, Westlake Village, Calif., assignor to Patent Management, Inc., Scarsdale, N.Y.

Continuation-in-part of Ser. No. 578,041, Feb. 8, 1984 abandoned, and a continuation-in-part of Ser. No. 916,140, 7, 1986, abandoned. This application Jul. 27, 1987, Ser. N 78,317

nt. Cl.⁴ H04N 9/31, 5/74; H01J 29/10, 31/00

projection lens system having an entrance pupil located a given optical distance from the concave phosphor surface of each of said tubes along an optical path aligned with an axis of the corresponding one of said tubes, said

ptical distance being substantially equal to th

rvature of said concave phosphor

phosphor surfaces and said proj

system cooperating to increase the amount of light inp to an entrance aperature of said projection lens system thereby permitting a smaller entrance aperture to be used to capture the same amount of light, or increasing the amount of light captured by an entrance aperture of a

e projection system recited in claim 1 further incl

ans for combining images generated by said cat

a composite image

tem recited in claim 9 further in

d between said cathode ray tube

em, said coupler having a

t said projection lens syst

IMAGE PROJECTI

ushi Tanaka, Kawasaki, Kaisha, Tokyo, Japan

Filed Sep. 16, 1986, S

BLAC

MOTI

nd Brian

nization Inc., Toronto, Canada

art of Ser. No. 512,844, Jul. 11

1986, Ser. No. 93

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r mask for the w

l white video signal tc

SWER PULSES IN A TV ANSWER
BACK SYSTEM

rza; Oscar Morales-Garza, and Jorge E
a, all of Garza Garcia N.L., Mexico, assignors to
George Town, British West Indies

neans to main-
site within a

tter site to generate and transmit to the
ronizing signals accurately controlled

ceiver site for the time gating period.

automatic frequency control means responsive to varia-
duced by the counter ov
determined datum coun
ator frequency thereby
frequency at th
y, whereby acc
at the receiver site is achieved
temperature, aging and the like

ndividual receiver stations, and
said oscillators at the receiver sta
h oscillator frequency controlled with
means responsive to low frequency synchroni-
ansmitted on the video signals from the trans-

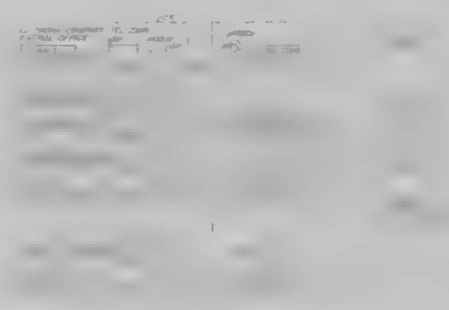
IMPULSE PAY PER VIEW SYSTEM AND METHOD

Meadows; Thomas J. Rossen, Oak Park, and Semir Sirazi, Chicago, all of Ill., assignors to Zenith Electronics Corporation, Glenview, Ill.

Filed Jul. 29, 1985, Ser. No. 760,218

Int. Cl.⁴ H04M *11/08, 15/00*; H04N *7/10*; H04H *9/00*

U.S. Cl. 358—86 63 Claims



d for implemen
ubscriber, said
a telephone company central office, said tel
pany central office using a computer which, in
phone call from the subscriber, provides a
age which includes an origination tele-
e calling subscriber and destination tele
entered by the calling subscriber via his
o indicate said purchase request, comprising

ly receiving a calling line data message from the
telephone company

applying first information representing the origination telephone number of the subscriber directly to a system c

said purchase request;

determining from said first information and said authorize

indicating the transaction to a billing syste

4,755,873
ENDOSCOPE SYSTEM

Kazunari Kobayashi, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 4, 1987, Ser. No. 46,295

Claims priority, application Japan, May 14, 1986, 61-109751

Int. Cl.⁴ H04N 7/18

U.S. Cl. 358—98 9 Claims

processing unit including an electric circuit capable of receiving and processing a video signal, produced by a solid-state

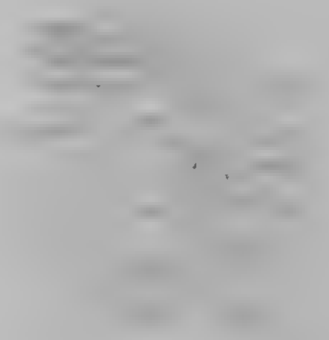
video-signal processing unit,
aid endoscope being one of a

other end having a plug connectabl
connecting portion of the receptacle alternately with the
first signal cord plug, said endoscope
image sensing device contained in t
insertion section thereof, and rem
a handy-control
eo-signal processing unit, said first
g a second signal cord and a ligh

SION MICROSCOPY SYSTEM

aratoga; Eliezer Rosengaus, Palo Alto, and Ezra
lder, Belmont, all of Calif., assignors to KLA Instru-
orporation, Santa Clara, C

Filed Aug. 31, 1987, S



drew de M. Fre
Marconi Compan

Filed Feb. 5, 1986, Ser. No. 82

Claims priority, application United King.

MAGE SC
ngler, Rochester, N.Y.
, Rochester, N.Y

Filed Jul. 27, 1987

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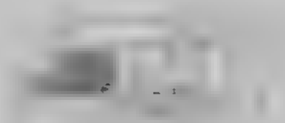
...DING AND PRINT...
...RECORDING MEDIUM

...rollert, Grosshoehenrain, Fed. Rep. of Germany, ...or to Siemens Aktiengesellschaft, Berlin & Munich, ...Rep. of Germany
Filed May 28, 1985, Ser. No. 738,45...
...priority, application Fed. Rep. of Germ...



...l unit ...g me... ...echanism for introducing and trans... ...medium past said read unit and said ...it, said housing comprising a lower housing part and an upper housing part releasable connected together, said storage space being located in said lower housing part, said transport mechanism being mounted in said upper housing part, said optical read unit and said print unit being ...her and disposed in said lower housing part ...sport mechanism whereby optical reading by ...d unit and printing by said print unit takes place ...recording medium, said transport mechanism ...g means for conveying said recording medium ...supply chamber to the optical read unit, to the print ...to the exit slot along a path in a single direction, said ...g means including first drive rollers adapted to en... ...recording medium from above and convey it for... ...rs adapted to ...ted on or opp...

...ing said first or second drive rollers in response to the recording medium striking said alignment levers, means for lowering said second and third drive rollers downwardly to engage said recording medium, said first, second and third drive rollers conveying said recording medium at a feed rate for line-by-line scanning by said optical read unit and for line-by-line printing by said print unit, and including an arc shaped basket releasably secured to the exterior of said lower housing part adjacent said exit slot for accepting said recording medium departing said exit slot and for conveying said recording medium up-

---

4,755,878

IMAGE INFORMATION TRANSMITTING SYSTEM

Tadayoshi Nakayama, Yokohama; Chikara Sato; Kenichi Nagasawa, both of Kawasaki; Tomohiko Sasatani; Koji Takahashi, both of Yokohama; Susumu Kozuki, Tokyo, and Katsuji Yoshimura, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 19, 1986, Ser. No. 932,773
Claims priority, application Japan, Nov. 22, 1985, 60-26398...
Int. Cl.⁴ H04N 7/137
13 Claims

...formation signal t... ...nal which continuously forms ...ne portions from an incoming image information signal, comprising

(a) dividing means for dividing each such im... ...tion of said incoming image information s... ...plurality of blocks,

(b) transmitting information signal forming means for f... ...ing, for each of said plurality of blocks obtained from ...dividing means, a transmitting information signal on the basis of one of a plurality of different information transmitting modes of transmitting the information signal in different degrees of information density including a mode in which present image plane portion of said image information signal is not transmitted,

(c) transmitting mode signal generating means for generating, for every one of said blocks, a transmitting mode signal which corres... ...signal formed by ...forming means and ...nonuse of said information transmitting mode in which the present image plane portion of said image information signal is not transmitted, and

...said transmi... ...mode signal

...J R. Hinson, Newbury, Great Britain, assignor ...mited, Kenly, United Kingdom
Filed Jun. 15, 1987, Ser. No. 62,767
...application United Kingd...

...signal processing syste...

...ng a store having ...leo signals therei... ...ls read from sa... ...ng pulses includ... ...iting and reading said video signals in said ...onsive to said input and output line cloc... ...ming signals syn...

...son K. Bartlett, Chula Vista, Calif., ...dak Company, Rochester, N.Y.

...PTO-ELECTRO...
...ANY DESIRED SC...

...ten Haenel, and Stefan Thomalsky, both of Munich, Fed. Rep. of Germany, assignors to Gesellschaft für Strahlen- und Umweltforschung mbH, Neuherberg, Fed. Rep. of Germany
Filed Jan. 7, 1987, Ser. No. 1,219
Claims priority, application Fed. Rep. of Germa... ...86, 3606765
Int. Cl.⁴ H04N 1/024, 1/028
...S. Cl. 358—213.11
14 Cla...

An arrangement in a camera for opto-electronic scann... ...ng a primary opt... ...he camera, said ...ensor having a ... ...ged in a line...

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4,755,882

ELECTRONIC BLACKBOARD PROVIDING HARDCOPY

Takehito Toyota, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 780,564, Sep. 26, 1985, abandoned. This application Feb. 24, 1987, Ser. No. 18,826

Claims priority, application Japan, Sep. 27, 1984, 59-202620

means in a direction

side means fixed from

ed in said storing means

4,755,883

ORMATION INPUTTING DEVICE ELECTRONIC RECORDING APPARATUS

ira, Nara, Japan, assignor to Sharp Kabushiki

ed Sep. 11, 1985, Ser. No. 774,888

ty, application Japan, Sep. 12, 1984, 59-192378

programming information to said
able information inputting device
key in
program recording
information,
memory means for storing
information,

appa-
ratus, said optical transmission means including a light emitting diode and a phototransistor, and
memory control means for controlling input and output of program recording information to
means for loading a recording and re
said apparatus,
a display portion for displayin
or reproducing information,
key input means for directly controlling operations of said

transmitted from said removable information inpu
device,
optical transmission means for communicating with said removable information inputting device, said optical
n means including a phototransistor and a light
diode
memory control means for controlling input and output of program recording
from said removabl
detecting complete insertion of said removable
n inputting device internally of said electronic
g and reproducing a
means for operating said recording and reproducing apparatus according to information stored in said memory

g information to said memory means of
aratus through the light emitting diode
device and phototransistor of said ele
ich that the elec
information rece
inputting device

4,755,884

AUDIO EVALUATION OF INFORMATION STORED ON A RECORD MEDIUM UNDER CONTROL OF VIDEO PICTURE FRAME NUMBER

Edward Efron, Irvine; James O. McPherson, Newport Beach, and Young B. Kim, Long Beach, all of Calif., assignors to Discovision Associates, Costa Mesa, Calif.

Division of Ser. No. 429,350, Sep. 30, 1982, Pat. No. 4,598,324, which is a division of Ser. No. 339,011, Jan. 12, 1982, Pat. No. 4,746,991. This application Jan. 13, 1986, Ser. No. 818,572

The portion of the term of this patent subsequent to Jun. 19, 2001, has been disclaimed.

Int. Cl.⁴ H04N *17/06*, G11B *27/30, 27/36*

U.S. Cl. 358—335 3 Claims

1. A method of evaluating measurements of specified audio
n audio-video program recorded on a
o portion of said program containing
bers, comprising the steps of
rmined picture frame number in said
hich audio evaluation of an audio por-
m is to commence
and video port
m from a firs

ng said detected and extracted picture frame num
rom said first member with said predetermined pi
rame number,
ng predetermined audio signal parameters of
ered audio porti
er upon coincide
numbers with said predetermined picture fram
er,
ud measured signal parameters from said first mem-
ry device to establish a stored "signat
udio portion,
udio and video portions on said

ith said pre

audio portion

Canon Kabushiki Kaisha, Tokyo, Japan
Oct. 29, 1985, Ser. No. 792,658
pplication Japan, Oct. 29, 1984, 59-225880
Int. Cl.⁴ H04N 5/76

APPARATUS
NCLUDING A HI
Alain L. Pailler, Bourg La
tronique Serge Dassault, I
Filed Dec. 17, I

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RIGGERING FOR WAVEFORM RECORDIN

p E. Deaver, Cupertino; Stephen K. Will, Sunnyvale; Ste C. Bird, San Jose, and Mark S. Allen, Saratoga, all of I., assignors to Hewlett-Packard Company, Palo Alto.

ed Oct. 31, 1986, Ser. No. 925,34

Int. Cl.⁴ G11B 5/00; 31/0

of a rement

table alarm count and a reset rement signal output if the alarm

gramming the alarm count of the timer ue larger than the periodic interval at s input signal satisfies a predetermined con-

4,755,888

H SPEED CONTACT PRINTING SYSTEM

Hori, Kanagawa; Tooru Naganuma, and Yoshiharu both of Tokyo, all of Japan, assignors to Sony Corpo- okyo, Japan

ed May 29, 1986, Ser. No. 867,9

Int. Cl.⁴ G11B 5/86; 15/18

nting signals repr on a master magnetic tape onto a slave mag tic tape having a length substantially longer than the master magnetic tape, comprising

a supply reel on which the slave magnetic tape is w printing means for applying a magnetic field to said magnetic tape and said slave magnetic tape as bo tic tapes are closely contacted with each other e running of the tapes so as to print said signals re the master magnetic tape on the slave magn

ens for de tor the sla means for de tape and

means for calculating the remaining amount of the slave magnetic tape wound on the supply reel on the basis of the neasurement roller and the determined thic

DIGITAL RECORD PLAYBACK SYSTEM

David M. Schwartz, Englewood, Colo., assignor to Compusonics Video Corporation, Palo Alto, Calif.

Continuation of Ser. No. 776,809, Sep. 17, 1985, which is a continuation-in-part of Ser. No. 651,111, Sep. 17, 1984, which is a continuation-in-part of Ser. No. 486,561, Apr. 19, 1983, Pat. No. 4,472,747. This application Aug. 12, 1986, Ser. No. 895,682

U.S. Cl. 360—32

1. A method of rec comprising the steps of

converting said analog signal into data streams, wherein at least one of said digital data streams is indicative of the chrominance value of an analog video signal, and wherein another of said data streams is indicative of the brightness of said chrominance value, and wherein another of said digital data streams is an indication of the pixel location of said chrominance and brightness values and, another of said data streams is indicative of the temporal value of the video data,

selecting a predetermined portion of each said digital streams

storing each of said selected predetermined portions of said digital data samples;

continuously sequentially comparing and analyzing said red predetermined port eams to produce positive difference signals and lata representative of the original chrominance, and temporal time frame of the original analog ring said data for subsequent playback ing digital data rep

4,755,890

CHANNEL FILTER

Jose, Calif., assignor to

Feb. 3, 1987, Se

d signal to a desired output signal, said

means coupled to said input signal for detecting said amplitude peaks and for outputting a first differentiated output signal,

apped delay means coupled to said first output signal, said tapped delay means providing a second diffe output signal, said second output signal taken input of said tapped delay means at the ch impedence of said tapped delay means;

delay equalization means coupled to said sec

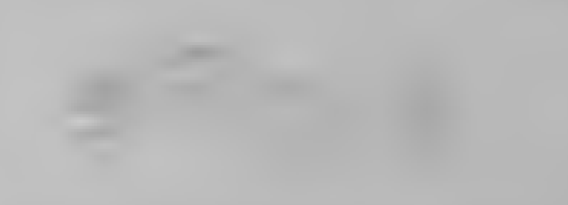
tude attenuation means coupled to said del means, said amplitude attenuation means o rd differentiated output signal.

hird output signal coupled to differentiator n ferentiator means outputting the derivative o

4,755,891

CIRCUIT FOR PROCESSING WAVEFORM OF PRODUCED SIGNAL IN MAGNETIC REPRODUCING APPARATUS

sahiro Katoh, Tokyo; Fumio Kugiya, Hachiouji, and Haju Aoi, Tachikawa, all of Japan, assignors to Hitachi, I okyo, Japan



A circuit for receiving a signal delivered out of a ring head

ng delaying said

METHOD OF AND APPARATUS FOR DISPLA MOVABLE SYSTEM DRIVEN BY AN ELECTRI ALONG A GIVEN TRAJECTORY

Daniel Carteau, Limours; Jean-Jacques Couette, M Bretoneux; Christian Maury, Velizy, and Pham Bagneux, all of France, assignors to Cii Honey

driv mg said s

step having

4,755,893

OL APPARA IGNALS AND P

koto Yamada, T Otaku, Tokyo, all of Tokyo, Japan

Filed Oct. 1986, Ser. No. 915,5

ng different

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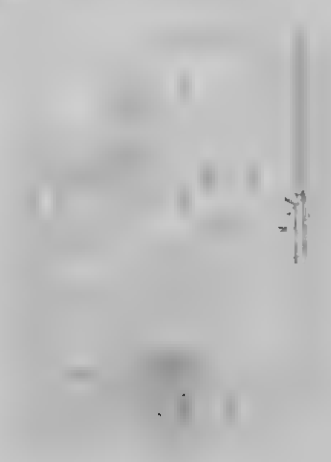
[illegible] produced by said reproducing means,

[illegible] said detecting means for providing an [illegible] which identifies said recording length of [illegible] the track [illegible]

4,755,894

[illegible]ASSETTE LOADING/UNLOADING MECHANISM [illegible]R USE IN A DISK RECORDER OR THE LIKE

[illegible]ester, and Robert G. C. Hills, Spencer-[illegible] assignors to Eastman Kodak Company,



[illegible] the loading/unloading position;

[illegible]le from a cocked position to a released position for ejecting a cassette from its loaded position at least partially out of the holder,

means responsive to the insertion of a cassette into the holder to its loaded position for (1) moving the ejecting means to its cocked position, and (2) actuating the holder supporting means to release the holder for pivotal movement to the recording position; and

means for (1) pivotally moving the holder from the recording position to the loading/unloading position, and then (2) releasing the ejecting means from its cocked position from its loaded position by ejecting the cassette at least partially out of the holder

4,755,895

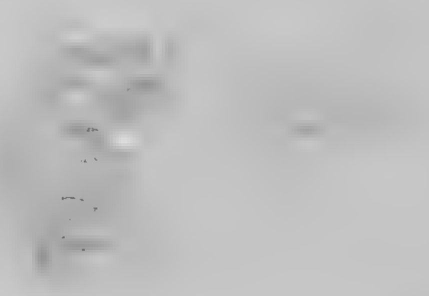
[illegible]OADING DEVICE FOR POSITIONING A DISC CASSETTE ON A RECORDING AND/OR REPRODUCING APPARATUS

[illegible]tsuro Saito, Ayase, Japan, assignor to Sony Corporation, [illegible]kyo, Japan

Continuation of Ser. No. 515,188, Jul. 19, 1983, Pat. No. 4,614,990. This application Mar. 6, 1986, Ser. No. 837,032

Claims priority, application Japan, Jul. 19, 1982, 57-125376; Jul. 21, 1982, 57-125883

Int. Cl.⁴ G11B [illegible]



[illegible]ling and/or repr[illegible] having a rotary sp[illegible]n and being intended for use with a disc cas[illegible] a generally rectangular jacket containing a [illegible]d having spaced-apart panel walls between [illegible]he disc is rotatable, said panel walls having openings [illegible]djacent one of the sides of said rectangular jacket to define a [illegible]ndow through which the disc is adapted to be exposed, and [illegible]ripheral wall extending between said panel walls with a [illegible] therein adjacent an end portion of said one side of the [illegible]t and with a groove in said peripheral wall extending [illegible]m said gap along said one side of the jacket, a shutter mov-[illegible] the jacket parallel to said one side between opened and [illegible]sed positions in respect to the window, means preventing movements of said shutter relative to said jacket beyond said opened and closed positions, said shutter including spaced plates and a connecting portion therebetween to straddle said [illegible] with a keeper extending inwardly from said connecting [illegible]nd being movable along said groove and into said gap [illegible]novement of said shutter to said closed position relat[illegible] said window, and a latch for locking th[illegible]osition and being disposed in said gap [illegible]utwardly in the gap to engage with [illegible]utter is in said closed position

a loading device for positioning the disc cassette on the recording and/or reproducing apparatus compris[illegible]

[illegible] side and the opposite side, resp[illegible]

[illegible]nd transducer,

[illegible]m extending from said first said portion of [illegible] holder and being operative, in response to [illegible]

[illegible] and act against said connecting port[illegible] for moving said shutter to said open[illegible] window; and

[illegible] side portion of the cassette hol[illegible] with said shutter for moving [illegible]

[illegible] Denki Kabushiki Kaisha, Japan

Filed Dec. 4, 1986, Ser. No. 938,236

[illegible]aims priority, application Japan, Dec. 5, 1985 [illegible]

[illegible]t. Cl.⁴ G11B 5/54, 21

[illegible]g magnetic head which is supported by sa[illegible] pivot therewith and is in contact with [illegible]c disk in the landing zone whe[illegible]

[illegible] Hirakata, and Kenji Kondo, Osaka [illegible] Matsushita Electric Industrial Co[illegible]

Filed Jun. 12, 1984, Se[illegible]

Claims priority, appl[illegible] Oct. 12, 1983, 58-18[illegible]

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ig defined between said gap-forming

means defining a recess for a coil winding in at least one of said core pieces, each said recess defining means being contiguous with said gap-forming surface of the respective said core piece;

a gap spacer means provided in said gap on at least one of said gap-forming surfaces,

at least one groove formed in said first non-magnetic substrate layer in the confronting edge surface of a respective said block, at least part of such groove being formed in the corresponding gap-forming surface;

at least another groove formed in said second non-magnetic substrate layer in the confronting edge surface of a respective said block, at least part of such groove being formed in the corresponding gap-forming surface;

each said grooves being defined by a respect surface

a metal layer formed on said wall surface

ous s
l suc
nding
ie sub
ks

aid ferromagnetic core layers comprising at least one
er of amorphous ferromagnetic material; and

adherent glass filling said grooves being a lead-containing glass having a melting point which is lower than the temperature of crystallization of said amorphous ferromagnetic material

said gap spacer mean
two first layers of
to each said ga

MAGNETIC TRANSDUCER HEAD HAVING AN ALLOY HIN FILM OF HIGH SATURATION MAGNETIC FLUX ITY SLANTLY PROVIDED WITH RESPECT TO AN RATING MAGNETIC GAP FORMED THEREIN

mio Kobayashi; Heikichi Sato; Makoto Kubota; Shoichi Kono; Tatsuo Kumura; Kazushi Yamauchi; Yoshimi Takahashi, and Junichi Saito, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 26, 1984, Ser. No. 686,540

Claims priority, application Japan, Dec. 30, 1983, 58-250988

Int. Cl.⁴ G11B *5/127, 5/23, 5/187*

c transducer head com

magnetic ferrite block and a magnetic metal thin film integrated with said magnetic ferrite blocks,

each of said core elements having a first planar surface and a second planar surface portion adjacent to and at an angle with respect to said first planar surface,

said magnetic metal thin film on said first core element being provided on said second planar surface portion of said first core element and facing an edge thereof to said first planar surface of said first core element, said second planar surface portion of said first core element being slantly provided with respect to said first planar surface of said first core element,

said magnetic metal thin film on said second core element being provided on said second planar surface portion of said second core element and facing an edge thereof to said first planar surface of said second core element, said second planar surface portion of said second core element being slantly provided with respect to said first planar sruface of said second core element,

said first and second core elements being bonded together in such manner than an operating magnetic gap is formed between said edge of said magnetic metal thin film on said first core element and said edge of said magnetic metal thin film on said second core element, said magnetic metal thin film on said first core element and said magnetic thin film on said second core element being in only a single common plane and forming a track width of said operating magnetic gap larger than the thickness of said magnetic metal thin film, and a common contact surface facing to a travelling magnetic recording medium is formed by said first and second core elements, said metal thin film on said first core element defining a first notch with said first planar surface of said second core element, and said metal thin film on said second core element defining a second notch with said first planar surface of said first core element, said first and second notches being filled with non magnetic material and defining the width of said magne

4,755,900

TAPE CARTRIDGE DRIVE WITH TAPE BIASING A TO ALLOW HEAD MOVEMENT NORMAL TO TAPE PATH

Myron Zarr, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 7, 1986, Ser. No. 882,679

Int. Cl.⁴ G11B *15/66*

U.S. Cl. 360—130.1 4 C

1. A drive mechanism for a rectangular tape cartridge having an access door along one side edge thereof for exposing tape extending along a path across a cutaway portion mechan

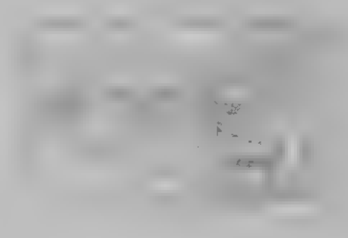
a frame having an opening for recei said tape adjacent said access door

a magnetic head mounted for the plane of and normal t

pect to the tap

a tape bias arm mounted for pivotal movement on adjacent said magnetic head, and

means mounted on said head for engaging and pivoting said arm to a position engaging said tape to move said tape



away from said head upon movement of said head from said retracted position to said raised position adjacent said path of said tape, and then to release the tape into engagement with said head when said head is in said raised posi-

4,755,901

VE JACKET FOR A DISK-SHAP RECORDING MEDIUM

Hubert Fehrenbach, Kehl; Werner Fehrenbach, Seelbach; Dietrich Gruehn, Appenweier, and Kurt Zwintzscher, Willstaett, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 21, 1986, Ser. No. 820,233

Claims priority, application Fed. Rep. of Germany, Jan 1985, 8501635[U]; Jun. 1, 1985, 3519691

jacket for a disk-shaped

least three edges by welding to produce a jacket not welded along at most one edge, both the inner and the outer surface of the blank being provided with an electrically conductive coat ich comprises a plurality of conductor paths in electrical ith one another, said conductor paths being spaced distance of not more than 4 mm at least in the areas

rically contacting relat

4,755,902

CTRONIC APPARATUS WITH MEMBER ARRANGED TO DETECT MOUNTING OF THE DETACHABL

Hiroshi Takahashi, Yokohama, Japan, assig ehiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 574,127, Jan. 26, 1984, application Aug. 11, 1986, Ser. No. 894,468

Claims priority, application Japan, Jan. 31, 1983

Int. Cl.⁴ H02H 7/2

U.S. Cl. 361—1

G RELAY FO

Gonzaburo o, Japan, assi Denki Kabushiki

Continuation of Se Nov. 29, 1984, ab. This applica 87, Ser. No. 26,

pplication Japan, Feb. 28, 19

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hase voltage (V) and a positive-phase
cation of said relay at the local end of
during a normal state of the system.
deriving means for respectively deriv-
tive-phase voltage (VF), a positive-
d a negative-phase current (I2) at the
during a fault state of the system.
vith selector switch means operated
rived

tem and for storing the derived value of the
se voltage (VF) during a fault state of the

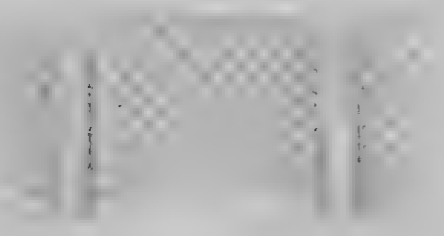
ory circuit with selector switch means oper
g the
ng a
and for storing the derived
phase current (IF) during a fault state

lation means for obtaining the fault

4,755,904

OTECTION SYSTEM

Filed Jun. 4, 1986, Ser. No.
Int. Cl.⁴ H05F



including an

rial embedded in sai
said fibrous material

trical pathways to disperse current from lightning
said outer layer of the composite material structure,
in direct electrical contact with said
disperse current throughout the com
ture, and being dimensioned to help maximize the con
tivity per unit weight and minimize the weight of
outer layer; and
conduct
rial
havi
ightning, and said fastener means being in electr
cont
said metal material being sufficiently proximate to the
tener means to divert current from li
to the fastener means away from th
reduce current densities between the faste
the composite material structure and thereby
plasma blow-by and fiber glow

METHOD

J. Telecky, Jr., Dallas, Tex., assignor
al Inc., Mentor, Ohio
Filed Nov. 26, 1986, Ser. No. 935,3
Int. Cl.⁴ H01H 47/00; G01P
61—235

olver means having a shaft
heel.

4,755,906

TRATE CONNECTOR GUIDE

mas D. Belanger, Jr., Clarendon Hills, Ill., assignor to
Communication Systems Corporation, Phoenix, Ariz.
Continuation-in-part of Ser. No. 32,666, Apr. 1, 1987,
abandoned. This application Sep. 28, 1987, S
Int. Cl.⁴ H05K 1/14
S. Cl. 361—415

r mounting and
to a carrier sub

said first pair of guide rails and each guide rail of
second pair of guide rails mounted on the perimeter e

ally connected t
nd second substrate guid
strate in a spaced and p
er, each of said substrate guides including a channel
ereof from
nd to a top guide, each channel further defined
e and first and second drop guides with
nd drop guides further defining first

ectrical substrate and said first and second guide rails
nged to be manually inserted into respective first and

l guide rail fall
on each of sai

Thomas D. Belanger, Jr., Clarendon Hills, Ill., ass
Communication Systems Corporation, Phoenix, Ar
Continuation of Ser. No. 032,666, Apr. 1, 1987, aband
pplication Sep. 28, 1987, Ser. No. 102,23
Int. Cl.⁴ H05K 01/14
—415

said first pair of guid
second pair of guide r

id electrical substrate a

substrate guide

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CAPACITOR

rer, 4595 Laguna Pl.,

Aug. 17, 1987, Ser. N

rtion of the inductor mean
tainer and the inner surface of
nnermost layer of titanium,
nore, depos-
ost layer,
glass container, said
at 25° C., of approxi
n said mixture being

ss container having adsorbed
l therefrom prior to the deposi-
nost layer by ex

the latter part o
roximately 80° C

4,755,90

ECT SWITCH WITH NO
ENCLOSURE

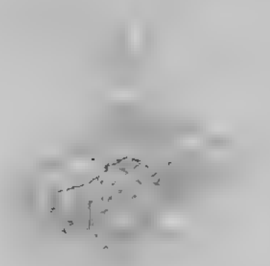
David A. Hibbert, South Windsor, and Larry J. Newmark
Avon, both of Conn., assignors to General Electric Company,
New York, N.Y.

Filed Mar. 16, 1987, Ser. No. 26,49

Int. Cl.⁴ H01H 9/00; H02B 1/00

361—331

1. An electr
a molded pl and bottom
opposing en gral opposing
sidewalls and a back wall
an upstanding peripheral rim integrally formed with said case extending around said sidewalls and said end walls
st platform integrally formed with said case and ext
ng from a top part of said bottom end wall intermed
al c , and said botto



4,755,910

HOUSING FOR ENCAPSULA
CIRCU

Christian Val, Saint Remy Les Ch
Cimsa Sintra, Asnieres, France

Filed Dec. 17, 1986, Ser. No. 942,65

Claims priority, application France, Dec. 17, 19

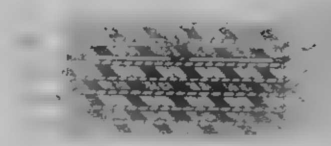
Int. Cl.⁴ H05K

1. A housing encapsulating an integrated circuit, comprising base on which is disposed said circuit and a cover mounted
ng the housing, wherein said circuit is
ity of studs and at least one centrally
aid studs divided into two groups, a first
at the periphery of said circuit and a second

Hirosuke Suzuki, Tokorozawa, Japan, assignor to Junkosha C
Ltd., Japan

28, 1987, Ser. No. 43,4

Cl.⁴ H05K 1/14



METHOD OF PHOTOGRAPHY

dwin C. Evans, Manhasset, N.Y., assignor to Gam
Conversions, Inc., New York, N.Y.

Continuation of Ser. No. 762,395, Aug. 5, 1985, abandone
which is a division of Ser. No. 462,942, Feb. 1, 1983, Pat
4,553,193. This application May 20, 1987, Ser. No. 51,77

Int. Cl.⁴ G03B 15/02

planar surface of the v

g from one area
constant dista
ennet to traverse the e
a constant intensity and

INDICATE IN THE DARK

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4,755,914

H NTING BOW LIGHT SIGHT

rbert R. Brett, 527 Maple Bluff Rd., Stevens
54481, and Dennis P. Domask, Rte. 2, Box 117D

Aug. 27, 1987, Ser. No
Int. Cl.⁴ F21V 31/0

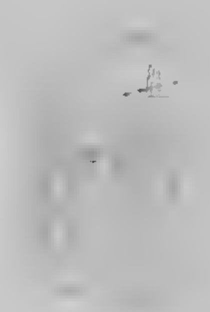
HING APPARA

4,755,916

MBINED FLOOD AND SP

Collins, Boulder, Colo., assignor
ora, Colo.

Filed Jul. 23, 1981 Ser. No. 285,94
Int. Cl.⁴ F21V 7/0



rwardly directed first lamp at an axially forwar
relation to the rear wall of the first reflector men

ve dimensions and loca

ally to the first r
rward in the

HEADLIGHT FOR VEHICLES, IN MOTOR VEHICLES

osef Bals; Horst Flerlage; Diethard Raede
temann, all of Lippstadt, Fed. Rep
lla KG Hueck & Co., Lippstadt

d May 13, 1987, Ser. No
application Fed. Rep.

zing, air in said interior space commu
teric air surrounding the headlight throug
versibly-acting hygroscopic desiccating means in ct
ns and providing substantially less resistance to flow of air
ut of said interior space than any other leakage point-
ud duct means having a portion projecting,
ace and having

that at least a larger pa
ugh said inlet opening a
of said op
of said ope

l hygroscopic desiccating mean

REFLECTOR SYSTEM

stash, Brecksville, and Timothy J. Bodn
hio, assignors to Lumitex, Inc., Royalton
Filed Apr. 6, 1987, Ser. No. 34,840
Int. Cl.⁴ F21V 7/06

e hemisphere center of said hemisp
with said focus, a light source

RECTANGULAR REFLECTOR TYPE H MOTOR VEHICLES

Gerhard Lindae, Leonberg; Rainer Neumann,
both of Stuttgart, all of Fed. Rep. of Germany,
Robert Bosch GmbH, Stuttgart, Fed. Rep. of Gerr
Filed Aug. 19, 1987, Ser. No. 8

Claims priority,
6, 3628041

Raymond

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em being engag

No. 15,468

including a plurality of three-faceted
by side to form a plurality of ridges
ng a peripheral annular catadioptric

having a reflective surface adjacent
jacent to said refrac

NVERTER FOR ETHERNET TRANSCEIVER

ohn M. Puvogel, Lawndale, Calif., assign
ion, Stamford, Conn.

Filed Mar. 26, 1987, Ser. No. 30,65

ransferring an input energy

ler means (SC) detecting the voltage across
esistor means (R1) and turning on and off,

(T1) transfers the stored energy to said secondary winding (W2),

input t

(R1) and switching controller mean
current voltage signal to be converted,
output filter means coupled to said secondary
utput with energy pulse tr
means (T1) into a regulate

tl reaches a pred

4,755,923

REGULATED HIGH-VOLTAGE POWER SUPPLY

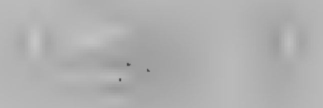
Yukio Maeba; Shigeki Kasai, and Kiyoteru Igashira, all of Nagaokakyo, Japan, assignors to Fukami Patent Office, Japan

Filed Mar. 24, 1987, Ser. No. 29,640

aims priority, application Japan, Mar. 31, 1986, 61-74593

Int. Cl.⁴ H02H 7/122, H02M 3/337

—56 4 Claims



l oscillation circuit formed by a primary windi
upled to a high-voltage transformer, a first positive feedback winding coupled to said high-voltage transformer, a first switching element having an end connected to said primary winding and a control terminal connected
said first positive feedback winding, a second
lback winding coupled to said high-voltag
former in a state reverse to said first positive feedback winding and a second switching element having an end connected to said primary winding and a control terminal
ected to said second positive feedback winding,
r controlling voltage to be supplied t

voltage transformer and supply its detect
control circuit thereby to attenuate out
said control circuit, and
time-constant circuit for maintaining an output state fro
aid short detecting circuit to said control circuit for
iod of time wherein said short d

e capacitor connected between s
k winding and a reference potential to be
n response to shorting in the secondary side of
tage transformer
ative capacitor connect
feedback winding and a

capacitors, and
ng element receiving said charges of said first a
regenerative capacitors through said diodes
esponse to said charges the
ltage from said control
ing connected betwee

PROCESS CONTR SYSTEM WITH TWO DEGREES OF

Kazuo Hiroi, Hachiooji, Japan, assignor to K Toshiba, Kawasaki, Japan

Filed Feb. 14, 1986, Ser. No. 829,06

Claims priority, application Japan, Feb. 19, 1985, 6 Feb. 19, 1985, 60-29441; Feb. 27, 1985, 60-38338; Jun 60-131925; Jul. 6, 1985, 60-148510; Jul. 6, 1985, 60-14 6, 1985, 60-148354; Jul. 19, 1985, 60-165729

Int. Cl.⁴ G05B 13/0

PLANT DIAG

oru Tsuchiya, and Kazunor
assignors to Kabushiki Kaisha Toshiba, Kanagawa

Filed Sep. 23, 1986, Ser. No. 910,68

Claims priority, application Japan, Sep. 24, 1985

Int. Cl.⁴ G05B /

l. 364—15.

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US FOR PROD
RVED SURFAC

oth of Tokyo, Japan, assignors

I Date Mar. 6, 1985, § 102(e)
No. WO85/00442, PCT Pub

I Filed Jul. 7, 1984, Ser. No. 711,578
ity, application Japan, Jul. 7, 1983, 58-123599

ojected curves as straight lines at

METHOD AND APPARATUS FOR PRODU THREE-DIMENSIONAL CURVED SURFACE TWO-DIMENSIONAL SECTION CURVE

Hajimu Kishi, and Masaki Seki, both of Tokyo, Japan, assignors to Fanuc Ltd., Minamitsuru, Japan
PCT No. PCT/JP84/00348, § 371 Date Mar. 6, 1985, § 102(e) Date Mar. 6, 1985, PCT Pub. No. WO85/00444 Date Jan. 31, 1985
PCT Filed Jul. 7, 1984, Ser. No. 711,5
y, application Japan, Jul. 7, 1983, 58-123600
Cl.⁴ G06F 15/46, G05B 19/18
7 Claims

entering, into the apparatus, s
second sections of the thr
section curve data specifyin
section curves of sa rved body for
said first and second fying a three-
dimensional curve which contains
first and second section curves, res
indicates at least a part of the extern

ont,
ection cur

al curved surf
ion curves are
ece in dependen

4,755,928

ARD BACK-UP AND RECOVERY SY TRANSFER OF RANDOMLY ACCESSIBLE DATA SETS BETWEEN CACHE AND HOST AND CACHE AND TAPE SIMULTANE

Johnson, Longmont; P. David Dodd, Boulder, and Dean ard, Longmont, all of Colo., assignors to Storage Tech- Corporation, Louisville, Colo.
Filed Mar. 5, 1984, Ser. No
Int. Cl.⁴ G06F 13/12, 12

and third data path means for transmissio
id cache means to said tape means
ans for directing the flow of data along each
g said cache means, sa

eans for transmitting control information from sa
che manager to said tape control unit, and
ns for accessing from said cache means, by said ho
n said cache means in re
same data is being cop
l tape means

APPARATUS AND METHOD FOR RETRIEVING DATA IN THE FORM OF BINARY, MULTIPLE BIT, DIGITAL COMMUNICATION WORDS FROM A SYSTEM BUS

Ronald W. Outous, Seattle, and Eugene P. McGuire, Woodinville, both of Wash., assignors to The Boeing Company, Seattle, Wash
Filed Sep. 28, 1984, Ser. N
Int. Cl.⁴ G06

ystem bus, eac
ing parameter be
digital data fo
e apparatus com
a label field of

rator having fir

t the digital dat

ndrew W. Wilson,
uthboro, Mass., assignor
ttboro, Mass

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and to said central memory through a

forms a write operation to a memory
iated private cache memory thereby
nts of that memory location, copying
id memory location into said shared
nnected to said first bus and into said
nected to said second global bus,
locations of cache memories
he memory to which the write
the cache memory into which
which contain a copy of the

memory location to which the
ed in a reserved state indicating
iche containing said reserved memory
private cache with a valid copy of said

r, having an associated
ith a memory location
rform additional write operations only to said
private cache memory means, said shared

emory system for use with a
m including a plurality of pro-
said cache memory system.

el cache memory means, each
iche memory means being associated
e plurality of processors, all memory

of a first level cache

4,755,931

R PROCESSING UNIT CAPABLE OF REAL FCTOR DATA FROM A VECTOR REGISTER SIMULTANEOUSLY TO PLURAL RESOURCES

Hitoshi Abe, Hadano, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 21, 1984, Ser. No. 685,117

priority, application Japan, Dec. 26, 1983, 58-243884

Int. Cl.⁴ G06F 15/347

1. A

vector data,
a plurality of resources,

nd for

transfer between each vector register and

d writing of data, respec
d second addrss counter
f data under control of sa
, and read control mea

nory banks sim
ter means resp
nsferring respective dat
memory banks of the v
said resources

4,755,932

INTERPRETER PROGRAM FOR PRO COMMANDS TO A COMPUTER APPLICATIO PROGRAM

hard A. Diedrich, Rochester, Minn., assignor to In
l Business Machines Corp
Filed Oct. 15, 1985

ch interpreter

CESSOR SYSTEM HAVING LOOK-AHEAD CONTROL

Ieshima, Yokohama, and Tetsuo Urushibar
Sagamihara, both of Japan, assignors to Fujitsu Limite
Kawasaki, Japan

Filed Oct. 29, 1985, Ser. No. 792,607

laims priority, application Japan, Nov. 1, 1984, 59-23065

Int. Cl.⁴ G06F 9/00

Cl. 36

A data processor system
main memory, and

reading inst

circuit, conne
supervising
memory, and
the advanced
from the prefe

and even pref

controlling th

SYSTEM FOR INP

Michiya Inoue, Hino, Japan, assignor to Fanu
sura, Japan
PCT No. PCT/JP85/00133, § 371 Date Nov
Date Nov. 20, 1985, PCT Pub. No. WO85/04501,
Date Oct. 10, 1985
PCT Filed Mar. 15, 1985, Ser. No. 804,6

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us from said programmable address

4,755,935

MEMORY SYSTEM HAVING
TION BUFFER WHICH STORES
E JUMPS PRIOR TO CPU ACCESS
E INSTRUCTION

Ioon Bay, and William Coates, Mountain
s to Schlumberger Technology

n indicated to
at a jump instr

art, Stow; Barry J. Flahive, Westford, and James
lington, all of Mass., assignors to Digital Equip
ation, Maynard, Mass.
led Jan. 29, 1986
Int. Cl.⁴ G

ing a data signal group identi

FOR HIGH BAN
EMORY

atick, Mass.

r providing high speed data communicat

between said shared m

REASSIGNS HIGHER PRIORITY TO INCO
ACCESS REQUESTS

Masanori Takahashi; Hidehiko Nishida, both of Toky
Koshino, and Akira Hattori, both of Yokohama, all of Japan,
assignors to Fujitsu Limited, Kawasaki, Japan
Continuation of Ser. No. 505,955, Jun. 20, 1983, abandoned
This application Oct. 20, 198
Claims priority, application Japa
Int. Cl.⁴ G06F 1

est control apparatus for a pipe

nternational Co

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…aim of these … to 1 pointer(s)

…ver a transaction message is

…g the second transaction authen…
…2) and the second transaction…

…rom the card holder the I…
…n the PIN to the card.

…g the card generated first tran…

…on parameter received from the card
…ansaction variant received from the data

…aim 1 in which the tra…

…any: Christopher

…A. Matyas, King…
and Jonathan…
…tional Business Mach…

…, 649,442, Sep. 11, 1984, abandoned. This
…Jan. 6, 1987, Ser. No. 4,81…

…terminal performs a timeliness or sequence check on the…

whic…

…first random number t…
…nitting it to said card t…
…d to said termin…
…inal ID from said t…

…t said central computer a secon…

…nputting by said user his PIN value into said t…
transmitting said PIN value from said terminal t…

…said card a test value transaction authentica…
…n parameter TAP2 which is a function of said generated value of TAP1 and the value Tiss and transmitting said test value of TAP2 t…
…comparing in said terminal said centrally generated valu… TAP2 from said central computer with said… TAP2 from said card.

…card…

…ter does not equal the value of TAP2 fro…

4,755,941
…MONITORING THE MOVEME…
…AND CHIPS ON A GAMING TA…
…1 Link Way, Denham, Buckinghan…
United Kingdom
Filed Sep. 5, 1986, Ser. No. 904,553
…priority, application United Kingdom…

…WHICH INH…
…SSOLATION F…

…Bronson Gardner, Garfield Heights, and Melvin I…
…grin Falls, both of Ohio, assignors to The Standa…

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F OF A LIQUID MEDIUM AND
TROL AND MONITORING MEANS
GROUP OF SUBMERGED WELL HEAD VALVES
Jarnay, Serres-Castet, France, assignor to Societe Na
le Elf Aquitaine (Production), Paris, France
Filed Jun. 11, 1986, Ser. No. 872,843
priority, application France, Jun. 11, 1985, 85 08800
Int. Cl.⁴ G06F

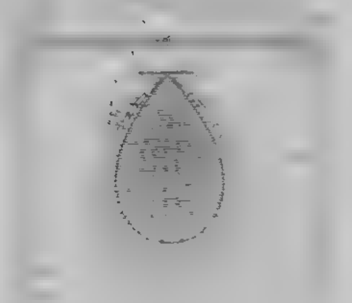
ve, and monitor
control and mo
valves, to the sensors and to
s, wherein the control and mon
each valve, a control and mon
he electrovalve and to the sensors corre
and, for all the modules corresponding
s, transmission means connected to the

applied by the
nals supplied to
ing means being
n channels, outputs of transmis-
multiplexing means being con-
nnels by switching means which
hannel in the ca
nnel and autom

4,755,944

IOD FOR OBTAINING DIELECTRIC CONST
AND CONDUCTIVITY INFORMATION ON SUBSO
STRUCTURE USING CONTINUOUS COMPLEX
GEOTOMOGRAPHY

Charles E. Glass, Tucson, Ariz., assignor to Terragraf
Tucson, Ariz.
Filed Apr. 14, 1986, Ser. No. 851,44



1. An improved method for obtainin
ation regarding the dielectric and con
ructure in the plane between at least two spaced
gnetic radiation transmit
dac
eceivers, the electromagnetic radiation signal
inates from the electromagnetic radiation trans-
and
both the amplitude and phase of the re
omagnetic signal to obtain simultaneously
ic constant and the conducti
n the at least two boreholes

4,755,945

E MODE ANTI-LOCK BRAKE CONTROLLER

Alexander Kade, Grosse Pointe Woods, and Kevin G. Leppek, West Bloomfield, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Sep. 24, 1986, Ser. No. 913,001
Int. Cl.⁴ B60T 8/82

U.S. Cl. 364—426 4 Claims

1. A wheel lock con
including right and lef
wheels for transporting the vehicle over a roadway surface having varying coefficients of friction, each wheel having a brake responsive to a brake pressure for braking the wheel, the

controlled independe
wherein (A) the brake

ides of the vehicle is less than
etting the control means in

TI-LOCK BRAKE C
EM

Mich., assignor to Gene
orporation, Detroit, Mich.
Filed Nov. 21, 1986, Ser. No. 933,211
Int. Cl.⁴ B60T 8/6

364—426 4 Claims

control system for controlling the brake pressure ap-
he brake of a vehicle wheel, the system comprising
actuator for applying a brake pressure the
wheel, the actuator including a tor a
phase winding, the torque motor generating motor torque
in response to motor current I_M to cor
applied brake pressure,
eans for sensing the magnitude of an ope
ing a controlled voltage V_m to the torque
of the motor torque
being generated in res
current I_m and a seco
wheel deceleration, (B) means for d

MONITOR F
ANCHOR LIN

Steve A. Braschler, and Fredrick
ville, Kans., assignors to Parmac
Filed Mar. 3, 1986, S

be

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essive bollard pull upon said support

mathematically programme

aid anchor line, and the tota

mitor at said different intervals

r line,

l unfor-

speed of payout of said anchor

curvature thereof that prevents

in upon said anchor line beyond its breaking

and excessive bollard pull upon said support

4,755,948

MATERIALS GATHERING CONTROL SYSTEM

Shoji, Kanagawa, Japan, assignor to Mitsubishi Denk
ushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1986, Ser. No. 875,408

ms priority, application Japan, Jul. 16, 1985, 60-156301

Int. Cl.⁴ G06F 15/00

rolling a bar material cutting apparatu
ity of cutting bites for receiving the bar
rn and to simultaneously cut the
arranged bar pieces of a desired

gathering pattern of said bar pieces in such a
e rate of use of the cutting bites is uniform in
h the count of said counting means

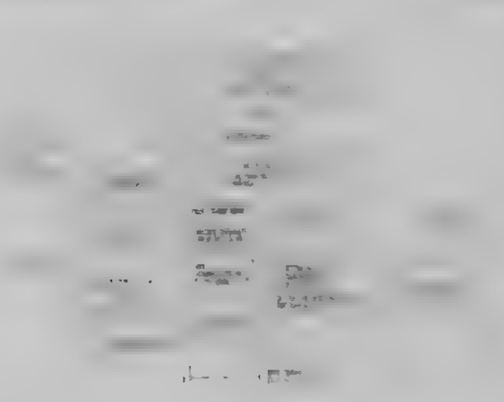
4,755,949

APPARATUS FOR SETTING WORK COORDINAT SYSTEM OF MACHINE

Hidefumi Shiratori; Osamu Mitsuizumi, and Kazuhiko Oiwa, all of Abiko, Japan, assignors to Hitachi Seiki Co., Ltd., Tokyo, Japan

Filed Apr. 21, 1986, Ser. No. 853,914

laims priority, application Japan, Apr. 19, 1985, 60-084248



1. An apparatus for determining a work coordinate system a machine tool and for compensating for differences between the determined work coordinate system and data in a numerical control machining program data memory, comprising

machining a work,

a tool rest having a surface defining a reference plane

a tool mounted to said reference plane of said tool rest and having a blade tip,

instrumentation means for measuring the position of sa blade tip which is positioned at a tool reference point

e plane data memory means for storing a dis-
m a machine original point to said reference plane
l rest, said distance being determined when said
plane is abutted against said instrumentation

tic means for obtaining as mounting dime
id tool a difference between said tool refere
tion and the distance from said machine original
nd reference plane of said tool rest,

hmetic means for obtaining as a work coordinate value data a difference between a distance from the machine original point to the blade tip of the tool an

---

itted by a position from a
ng a machining allowance

STOCK DIVIDER INCLUDING A COMPUTER CONTROLLED GEAR LOCATOR

Suren B. Rao, Troy, Mich., assignor to National Broach Machine Company, Troy, Mich.

Filed Apr. 28, 1986, Ser. No. 856,485

Int. Cl.⁴ B24B 49/00

to the cross-section of a tooth space of the gear,

a wheel drive for rotating the wheel at grinding speed

a traverse drive motor for effecting relative traverse between the gear and wheel in a direction generally par to the gear axis,

stock divide mechanism comprising a sensitive probe adapted to be positioned at random in a tooth space of said

pindle for grinding all of the gear

perated by said computer for initiating rotation of said spindle drive motor in one direction u introduction of said tip into a tooth space,

sensing means actuated by proximity of said tip to one side of the tooth space for transmitting a first angular position of the gear to said computer for storage in said computer and for effecting operation of said control means to reverse said spindle drive motor,

said sensing means being actuated by proximity of said tip to the other side of the tooth space for transmitting a second angular position of the gear to the computer for storage in the computer and for effecting operation of said control means to again reverse said spindle drive motor, and

said computer including means for determining one half of the angular difference between said first and second angular positions and for effecting operation of means to terminate the second reverse rota spindle drive motor when said second revers equal to said one half of said angular differen

les L. Hollister, Beaverton, Oreg., a
Beaverton, Oreg.

sequence of analog samples, each sam

offset and ga

ing each data of the

dressable memory for storing data
eans for adding each data of the fo
corresponding data stored in said me
ducing a fifth sequence of digital dat

MEASU

Antony Johns
England

Filed Mar. 19

Claims priority, application Unit

Int. Cl.⁴ G

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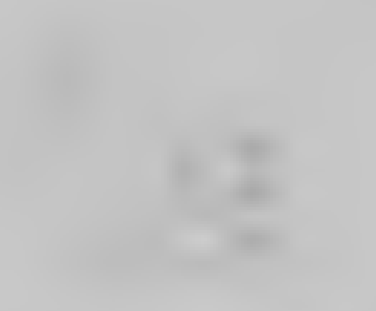
…e means to generate signals to measure…

…generated by said measuring… …e stored data relating to said… …ce profile in said mem…



…ucating data relating to any… …g means or to said machining…

…ted from said gauging…

…5,95…

…TING APPARATUS

…l Dennis P. Surr, Kent, both of…

…signal

4,755,954

…INDOWING SY…

…DISPLAYS

…t, Israel, assignor to Elscint Ltd., Haifa, Israel

…led May 3, 1985, Ser. No. 730,116

…riority, application Israel, May 21, 1984, 71878

Int. Cl.⁴ G06F 15/68; H04N 3/…

…64—518 13 Claims

…means for supplying said digi…

…provided at said… …ing variable resp… parameters including slope and thre… the said digital data to extend the da… substantially fill the entire intensity ra… image, whereby windowing is accomplis… look up table basis.

4,755,955

DOCUMENT CREATING APPARATUS

…azuhiro Kimura, Yokohama, and Kiyoshi Kikuchi, Ninom… both of Japan, assignors to Kabushiki Kaisha Toshiba, K… …aki, Japan

…ontinuation of Ser. No. 627,530, Jul. 3, 1984, abandoned… application Apr. 29, 1987, Ser. No. 45,751

Claims priority, application Japan, Jul. 6, 1983, 58-1215…

…G06F 15/40, 15/62; G09G 1/00; B41…

…ry figure information representing a boundary…

…boundary figure, and the nu… be arranged on each of the… he boundary figure, and f… …isplayed on eac… …e with the calcul…

…oundary figure information holding means… …tion coordinate information on the center of… …igure obtained by said calculating means a… …ary figure information;

…aid display means being responsive to said calculating means and said boundary figure information holding means to display the… …ary figure such th…

4,755,956

…ME APPARATUS FOR MO…

DISPLAY SYSTEM

…onald J. Porawski, Cedar Grove, N.J., assignor to All… …al Inc., Morris Township, Morris County, N.J.

Filed Nov. 1, 1985, Ser. No. 794,020

…moving film to a moving map video display, said system pro…viding analog video signals corresponding to the frame position of the moving film, apparatus for providing a continuous video display of the map at a predetermined frozen film frame position, said apparatus comprising:

means for converting analog video signals corresponding to the predetermined frozen film frame position into digital signals including

…ltiplexer means responsive to the command for being …ed from a system "on-line" mode to a system …ine" mode for selecting analog video signals corresponding to the predetermined frozen film frame position,

…ounter means connected to the multiplexer means and …ponsive to the synchronizing signal from the sy… …ing the multiplexer means in accordance… …ertical synchronization of the raster of the n… map video display

…ontroller means t…

…aniel White, Indianapolis, and John Han… …Ind., assignors to K White Tools, Inco…

…tioning system… converting said measured p… corresponding to said meas… …lyzing said electrical signal… …gnals to electrical signals… proper func… providing an… …system is…

…erly… of the… provid… by t… …tem is not…

11. Apparatu… systems, said app… and low side pr… for charg… …gerant, and mea… ing said… …provement comp… tronic processing means connected to said pressur… means for analyzing said measured high and low s… and for diagnosing the condition of said air-cond… function of said measured high and low side pres… …t means coupled to said electronic processing m… …utting said diagnosis, indicating one or more po… …uses of the malfunction and the… be operator to effect repair of s…

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priority, applica

r to generate
ing detected

d by a processor for reading out the
nory in a temperature reading opera-

4,755,959

IENT FOR CALCULATING A
ITALLY STORED GROUND
MODEL

einer Weber; Wolfgang Geiger, both of Ottobrunn; Manfred Hubschmann, Taufkirchen, and Erwin Quednau, Munich, all of Fed. Rep. of Germany, assignors to IBP Pietzsch GmbH, ttlingen, Fed. Rep. of Germany

Filed May 15, 1985, Ser. No. 734,194

t laims priority, application Fed. Rep. of Germany, May 16

Int. Cl.⁴ G01B 21/00; G06G 7/80

64—561

5 Claims

calculating a distance along a line of sight int in an x,y grid having spaced elements at an spect to the x axis, comprising:

ntegrators each having an input terminal for input signal related to (a) a trigonometric value of the angle ϕ and (b) the size of the elements of the grid, and each providing an output signal to an output terminal and integrating the received input signal for one step upon the receipt of a clock pulse,

h having an input terminal for elated to (a) a trigonometric

said first set of integrators with the out
f the integrators of said second set of int

4,755,960

WAVEFORM DATA COMPRESSING CIRCUIT

Brian E. Batson, Lake Oswego, and Gary R. Fladstol, Portland, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Jun. 20, 1985, Ser. No. 746,89

electively operating in one of data compression mode and a transparent mode by generating a data word pair characterizing maximum and minimum data words of a first sequence of data words when operating in said data compression mode and generating a second data word sequence matching said first sequence when operating in said transparent mode, said apparatus comprising

first means for storing data,

second means for storing data,

third means for comparing data stored by said

with each word of said first sequence as it occurs and replacing data stored in said first means with each said

CIRCUIT

ma, both of

NEC Corporation, Tokyo, Japan

Filed Sep. 4, 1985, Ser. No. 772,53

priority, application Japan, Sep. 4, 198

having a center frequ

and
ilter means responsive to each said bina

each said binary code for
hose high order side consists

a first bit string of k (positive integer) bits, each having the same value as the sign bit of said binary code, and whose low order side consists of a second bit string identical to the m high order (positive integer) bits of said binary

first addition means responsive to said third bit string fed from said first shift means as first input data for producing first addition data obtained by adding the first input data and a second input data,

ns through wh
eing delayed by
neans for inverting

from said first delay means to produce first inverted data

second shift means for outputting a sixth bit string whose high order side consists of a fourth bit string consisting of n bits, each having the same value as the sign bit of said first addition data passing through said first delay means,

MICROPROCESSOR

nd Instrument
ontinuation of S
which is a contin

8 Microfiche, 433 Pages

ian circuit in a
gorithm and op

three status bits;

second means for storing a multiplicand
plying it by two upon receipt of a
having an ou
doubled multi

third means for storing the partial p
product,

fourth means coupled to said second m
performi
tweer

means
for cau
or two times the multiplicand to or from said p
uct and shift by two or do nothing but shift

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...ws and store t...
...l means, and

the partial products at

4,755,963

...LLY PARALLEL COMPUTATION NETWORK WITH MEANS FOR REDUCING THE ALGEBRAIC DEGREE OF THE OBJECTIVE FUNCTION

...hn S. Denker, Red Bank; Richard E. Howard, and Lawrence ...ackel, both of Holmdel, all of N.J., assignors to American ...phone and Telgraph Company, AT&T Bell Laboratories, ...y Hill, N.J

...led Apr. 14, 1986, Ser. No. 851,234

Int. Cl.⁴ G06F 15/46

...07 11 Claims

...circuit for developing N simultaneous ...nimize an energy function that is char... in terms of products of differ...ils, including product terms of ...prising ... where M is a number that is ...d by the number of terms in said ...der is greater tha... ...lesignated by a ... ...n input port and ... and ...necting the output of ...t of each of said amplifi... ...ons, with each of said connec... ...gh a conductance T_{ijkl} ...luctance T_{ijkl} connects the output of the ...ed by indices ij to the input of the ampli... ...indices kl, spanning the range of indices ...luctance values which are linear combi...ns, where λ_x are predetermined ...d by index x and δ_z^y is a function ...y = z, and zero otherwise, where ...f indices i, j, k and l.

4,755,964

ME...MORY CONTROL CIRCUIT PERMITTING ...OCOMPUTER SYSTEM TO UTILIZE STATIC AND DYNAMIC RAMS

...y G. Miner, Mendham, N.J., assignor to American Telephone and Telegraph Company and AT&T Bell Laboratories, both of Murray Hill, N.J.

Filed Apr. 19, 1985, Ser. No. 725,019

Int. Cl.⁴ G06F 15/00

...900 5 Claims

...d RD, write $\overline{WR}$, interrupt acknowledge INTA and ...dress latch enable $\overline{ALE}$ signals interacts with

a memory circuit having a specified address and coupled to the microprocessor to receive and send data whereby the memory circuit comprises one of static memory circuit and dynamic memory circuit, and

a memory decoder circuit coupled to supply chip enable signals to the memory circuit, in response to an enable signal input,

the enable signal processing circuit comprising:

gating circuitry for providing a properly timed enable si... to the memory decoder circuit including:

a first AND logic circuit with hysteresis characteristics at its inputs and coupled to receive read $\overline{RD}$, write $\overline{WR}$ and interrupt acknowledge $\overline{INTA}$ signals from the microprocessor,

a polarity inverting circuit with hysteresis characteristic at ...

... inputs and coupled to receive an addres... ...signal $\overline{ALE}$ from the microprocessor,

an RS flip-flop comprising first and second NAND gates cross coupled with each other and having a reset input coupled to an output of the first AND logic circuit and a set input coupled to an output of the polarity inverting circuit,

a D-type flip-flop having its D input coupled to receive an output of the RS flip-flop, and a clock input and an output terminal to supply an enable signal,

a second AND logic circuit coupled to receive inputs from the first AND logic circuit and the polarity inverting circuit and having its output coupled to the clock input of the D-type flip-flop, and

the enable signal at the output terminal of the D-type flip-flop is coupled to the memory decoder circuit whereby a properly timed chip enable signal may be applied to the memory circuit

4,755,965

PROCESSOR TO CARRY OUT DATA PROCESSING IN DIFFERENT MODES AND MULTIPLICATION DEVICE SUITABLE FOR SUCH A PROCESSOR

Luc Mary, Bures sur Yvette, and Bahman Barazesh, Paris, both of France, assignors to Telecommunications Radioelectriques et Telephoniques T.R.T., Paris, France

Filed Aug. 12, 1985, Ser. No. 765,020

Claims priority, application France, Aug. 14, 1984, 84 12799; Aug. 14, 1984, 84 12801

Int. Cl.⁴ G06F 9/00

U.S. Cl. 364—900 10 Claims

1. A processor for executing a plurality of data processing operations which constitute either a single precision, double precision, or complex ...

a program memory ...

an instruction regis... ...program memory

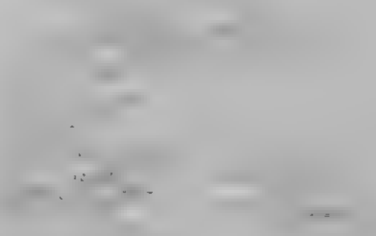
a data memory;

an arithmetic logic unit connected by a data bus to said data memory,

a control code and borrow management circuit connected to ...id arithmetic logic unit, and connected by an instruction ...t to said instruction register, whereby an instruction from said register controls said contro... ...management circuit,

...a clock pulse generator connected to said control code and borrow management circuit, said clock pulse generator producing a different clock cycle for each of a plurality of modes in response to mode control signals;

...mode circuit connected to said instruction bus, said mode circuit detecting a declaration instruction in said instruction register, said mode circuit generating mode control signals in response to a declaration instruction, and applying said mode control signals to said clock pulse generator for changing said clock cycle, and to said control code and borrow management circuit, so that under control of



said clock pulses, mode control signals, and ... register, said arithmetic logic unit carries out one ... ...onstituting a mode on data supplied from said ... and ... ...thmetic logic unit is coupled to a first data ...ia a binary shifter unit, and upon receipt of an in...ruction by the control code and borrow management ...ircuit generates upon receipt of a clock pulse ...cle ...nt control words according t... ...ration instructions for controlling the arithm... unit, and the binary shifter unit, so that one or m... ...tions defined by said one or ... respectively are executed

4,755,966

...AL BRANCH PREDICTION OPTIMIZATION

...by B. Lee, Cupertino, and Allen J. Baum, Palo Alto, both ...alif., assignors to Hewlett-Packard Company, Palo A...

...Jun. 28, 1985, Ser. No. 75...

Int. Cl.⁴ G06F 9/00

...ontrolling the execution of a p... ...ter to maximize the use of a delay ... ...m and branch instruction, the prog... ...onal branch instruction, a first ...

...tion (delay slot instruction) and a th... being performed by executing the c... ...tion thereby controlling how normal sequ... instructions is restarted, the conditional ... containing a predetermined condition and a d... condition having true and false states, said displacemen... positive and negative values where positive values a... direction of normal sequential execution, the first in... being located at said displacement from the branch ins... in the program, the second instruction being the time ... ...tial instruction to the branch instruction in the pr... third instruction being the space sequential ... second instruction in the program, the met...

determining the value of the displacem...

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MMABLE SYNCHRONOUS SEQUENTIAL TATE MACHINE OR SEQUENCER HAVING DECISION VARIABLE INPUT MAPPING CIRCUIT RESPONSIVE TO FEEDBACK SIGNALS

Joseph Gabris, Newbury, United Kingdom; Vincent J. Coli, Mountain View, Calif.; Paul A. Dennig, Sunnyvale, Calif.; Mark E. Fitzpatrick, San Jose, Calif., and Sai-Keung Lee, Sunnyvale, Calif., assignors to Monolithic Memories, Inc., Santa Clara, Calif

Filed Mar. 21, 1986, Ser. No. 842,508

feeding back signals including mary address signals, and which

mable input mapping circuit including a sum of array wherein sequencer input and sequencer are connected in predetermin s of product term AND ga gates and wherein input mappi ies are connected to input lines of said ND gates in each of C sets of AND gates luct signals on AND gate output lines h set to input lines of respective OR t of said OR gates being connected to ut output lines

te words of W bits, said te word memory output

es, branch address input lines connected to said input apping circuit output lines and primary address input es for receiving primary address signals.

t register having W input lines connected to said rd memory output lines, input mapping feedback nected from said output register to said input control lines and primary address feed- nected from said output register to said address input lines of said state word memory, tput register being responsive to a timing signal d source of timing signals to transfer state word output signal values received from said state emory to said state word output lines, to provide ddress signals over said primary address feed- said state

4,755,968

BUFFER MEMORY DEVICE CONTROLLED RECENTLY USED METHOD

Toyohiko Yoshida, and Yoshihiro Seguchi, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki, Tokyo, Japan

Filed Jun. 17, 1986, Ser. No. 875,447

Claims priority, application Japan, Jun. 18, 1985, 60-132709

Int. Cl.⁴ G11C *13/00*

buffer memory device comprising

lurality of memory blocks each including a register and a comparator for comparing the content of said register and the input data and developing a coincidence signal upon the coincidence thereof; and

control circuit responsive to said coincidence signal for controlling the shift of the data within said registers in such a manner that, when a coincidence signal is developed by a comparator of a selective memory block, only the contents of said registers between the first memory lock and the selected memory block are shifted, said cuit comprising,

of transfer gates, a transfer gate being provided between a data input terminal and said register of said first memory block, for shifting said input data to said first memory block, a transfer gate being provided between each two said adjacent memory blocks for ting said data between said adjacent registers,

lity of NOR circuits, a NOR circuit being provided rrespondence with each of said memory blocks for ng ON or OFF said transfer gates, and

lurality of NAND circuits, each said NAND circuit being in correspondence with one of said memory blocks for generating a signal for controlling each of said corresponding NOR circuits in response to the said coincidence signal developed by said one of said memory blocks.

4,755,969

PSEUDO RANDOM SEQUENCE GENERATION

Andreas Pappas, Freehold, N.J., assignor to Digital Electronic Communications Equipment (DECE Corp.), Freehold, N.J.

Filed Nov. 7, 1986, Ser. No. 928,189

Int. Cl.⁴ G11C *11/40, 13/00*

U.S. Cl. 365—189 6 Claims

1. A PN sequence generator comprising first and second Read counters and a Write counter, first and second Random Access Memories (RAMs), said RAMs each comprising an address input (A), a Write terminal (W), and a D_{in} terminal, first and second Selectors, said first Selector arranged to connect, during each read mode, the output of said first Read counter to the address (A) input of said first RAM and also to connect the output of said second Read counter to the address input (A) of said second RAM, both of said Selectors arranged to connect the output of said Write counter to the said address inputs (A) of both of said RAMs during each write mode,

Ms during each of said write modes, said read and des comprising different polarities or haves of each of k pulses applied to said circuit, an Exclusive-Or (Ex-

ed by the readings or outputs of the Read led thereto during each of said read modes, the said Ex-Or gate forming the PN sequence output, ns to apply the current sequence bit from said Ex-Or put to the said D_{in} terminal of each of said RAMs said write mode of each clock pulse

4,755,970

METHOD AND APPARATUS FOR FUNCTIONA TESTING OF A MEMORY WHICH IS REPROGRAMMABLE ELECTRICALLY WORD BY WORD

Hartmut Schrenk, Haar, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 465,532, Feb. 10, 1983, abandoned. This application Dec. 30, 1985, Ser. No. 814,620

Claims priority, application Fed. Rep. of Germany, Feb. 16, 82, 3205473

1. Method for the functional testing of a memory being lectrically programmable word by word and including stor- g storage transistors of such given widths of the s during normal operation, that the programming times remain short during the specified life of the cells, which comprises reducing first the width of the reading windows of the storage transistors during a functional test, as compared to the given width during normal operation, and determining next if the memory contents can be read correctly.

4,755,971

BUFFER MEMORY FOR AN INPUT LI INTERFACE

Wolfgang E. Jasmer, Ulrich R. P. Killat, both of Hamburg, and Johann E. W. Krüger, Quickborn, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N

Filed Apr. 30, 1985, Ser. No. 728,729

Claims priority, application Fed. Rep. of Germany, M 84, 3416610

Int. Cl.⁴ G11

the local clock of the interface, comprising a read/write c trol device which writes the arriving data with the data cl successively into the buffer memory and which reads the dat with the local clock in a time-shifted manner, and also comprising a monitoring device which monitors the spacing between the memory location in which a write operation is performed at the relevant instant and the memory location in wl operation is performed at the same time, said monit vice increasing said spacing by skipping a number of memor locations when the spacing becomes smaller than a predetermined value during writing and/or reading, characterized in that the buffer memory comprises a plurality of separately, uccessively addressable storage blocks (20) and in that the monitoring device (22) monitors the spacing between writing and reading only w over from one sto bec the addressing of the storage blocks in device (12, 16) that the spacing betw

THOD OF SEISMIC EXPLORATION INCL ROCESSING AND DISPLAYING SHEAR SEISMIC DATA

Kenneth E. Hanson, Broken Arrow, and Leon A. Thom Tulsa, both of Okla., assignors to Amoco Corporation, cago, Ill

Filed Sep. 26, 1985, Ser. No. 780,523

Int. Cl.⁴ G01V *1/053*

U.S. Cl. 367—75 29 Cl

1. A method plurality of shear w of formation properties, comprising the st obtaining a measure of shear wave refle

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[illegible] attributes descriptive of variations in the [illegible]flection coefficient as a function of incident

[illegible] selected seismic event

[illegible]VEILLANCE
[illegible]nd Kurt Mueller, Stäfa, both of Swit-[illegible]rberus AG, Mannedorf, Switzerland
May 20, 1986, Ser. No. 864,849
[illegible]application Switzerland, May 24, 1985,

[illegible]mprising [illegible]g a membrane of a

[illegible] for driving said at least

4,755,974

CONTENT-ADDRESSABLE MEMORY

Hachiro Yamada, Tokyo, and Kousuke Takahashi, Tokyo, both of Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Oct. 31, 1985, Ser. No. 793,388
Claims priority, application Japan, Oct. 31, 1984, 59-229512
Int. Cl.⁴ G11C *13/00*
U.S. Cl. 365—49
44 Claims

1. A content-addressable memory device for searching th[illegible] address of an input data to be searched, said content-addressable memory device comprising.

memory means including a matrix of memory cells includi[illegible] a plurality of pairs of columns, the row position of each of the memory cells corresponding to the content of the data, the position of each of the pairs of columns corresponding to the address the first column of each pair of columns being for storing the data at the exact address and the second column of each pair of columns being for storing the data having a Hamming distance of a predetermined value from the data stored in the first column of the same pair of columns,

[illegible]

and reading means for reading the content of the memory cells belonging to the row selected by the row selecting means and outputting the content of the memory cells of the first or second column of each pair of columns of said selected row sequentially in response to a reference signal

4,755,975

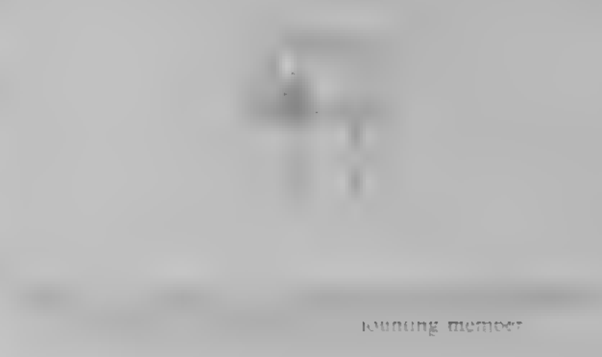
PIEZOELECTRIC TRANSDUCER FOR TRANSMITT[illegible] OR RECEIVING ULTRASONIC WAVES

[illegible]shiharu Ito, Seto, and Eiji Ozeki, Nagoya, both [illegible] assignors to NGK Spark Plug Co., Ltd., Japan
Filed Feb. 4, 1986, Ser. No. 825,889
Claims priority, application Japan, Feb. 8, 198[illegible] Feb. 19, 1985, 60-31285; Feb. 19, 1985, 60-31286
Int. Cl.⁴ H04R *1/02, 17/00*
[illegible]S. Cl. 367—140

[illegible] wave wherein said tra[illegible]

[illegible] ectric element [illegible] aid base membe[illegible]

the center of said base member so that the terminals are sym-



4,755,976

PROCESS AND APPARATUS FOR ANALYZING AND CONTROLLING ENERGY TRANSFER TO THE GROUND

Hans A. K. Edelmann, Hanover, Fed. Rep. of Germany, assignor to Prakla Seismos AG, Hanover, Fed. Rep. of Germany
Filed Feb. 9, 1987, Ser. No. 12,024
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1986, 3604712
Int. Cl.⁴ H04R *23/00*
[illegible]67—189
9 Claims

1. A process for generating a signal representa[illegible] active power in an energy transfer process wherein the active power is the component of the total power which tends to deform the ground wherein a power-driven vibrator transfers seismic energy to the ground by means of a baseplate supported against a reaction mass, including the steps of

measuring and producing signals representative of the acceleration components of the baseplate and the reaction mass,

weighting each of the acceleration component signals in accordance with weighting factors proportional to the respective masses,

summing the signals representative of the acceleration components to obtain a signal representative of the complex total force component,

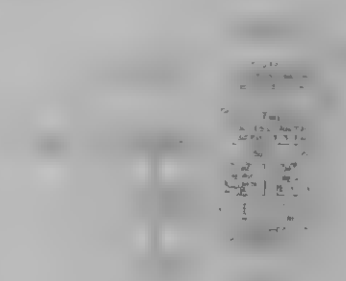
integrating the signal representative of measured acceleration of the baseplate to form a signal representative of baseplate velocity, and

multiplying the signal representative of the complex total force component with the signal representative of baseplate velocity to form an output signal representative of the active power component of the energy imparted t[illegible] earth in the transfer process

4,755,977

RUNOUT COMPENSATION FOR A COARSE TRACKING SERVO SYSTEM IN AN OPTICAL DISK STORAGE UNIT

Majeed Abed, Lafayette, Colo., assignor to Storage Technology Partners II, Louisville, Colo.
Division of Ser. No. 627,790, Jul. 5, 1984, abandoned. This application Oct. 14, 1986, Ser. No. 917,955
Int. Cl.⁴ G11B *17/22, 7/095, 21/10*



1. In an optical disk storage unit for reading data from [illegible] writing data to a removable disk surface having a rotat[illegible] axis, a plurality of data bands having data tracks c[illegible] spaced about said rotational axis, and a plurality [illegible] readable servo tracks concentrically spaced about said rotational axis between said data bands, said optical disk storage unit having an access and tracking system including a light source for continuously illuminating a portion of said disk surface that spans the width of at least one data band, including at least one servo track, and detector means for detecting light returned from said portion including light returned from said illuminated servo track, wherein said access and tracking system includes a coarse tracking system controlled by the output of said detector means and a fine access and tracking system, including a second light source, responsive to a separate light beam projected from said second light source and reflected by a single data track on said disk, the improvement comprising

means for rotating said disk surface about said rotational axis,

an optical head positioned adjacent to said disk [illegible] reading or writing thereon,

means for positioning said head with respect t[illegible] surface in a radial direction, wherein said mea[illegible]tioning said head is connected to said detect[illegible] control by an output therefrom,

means for storing and periodically outputting a [illegible] representing the eccentricity of said tracks [illegible] functi[illegible]

means [illegible] detec[illegible] disk [illegible]

4,755,978

DISC PLAYER

Kazuyuki Takizawa, Chiba; Hiroyuki Urushibata, [illegible] and Yoshiaki Kumagai, Tokyo, all of Japan, assign[illegible] Corporation, Tokyo, Japan
Filed Feb. 10, 1987, Ser. No. 13,232
Claims priority, application Japan, Feb. 18, 198[illegible]
Int. Cl.⁴ G11B *17/22, 17/26*
U.S. Cl. 369—37

1. A disc player comprising a [illegible] the front thereof, a slide table m[illegible]

[illegible] asing and a se[illegible]

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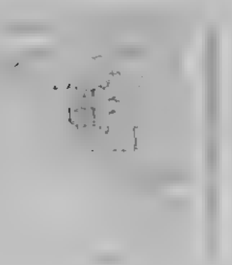
axis at the center of said disc tray and storage areas arranged about said tore a plurality of discs on said disc ting said disc tray and halting it at n optical pickup and a turntable said casing at a play position for reproducing



ced at said play position by said disc tray, and loading erative in a first mode for displacing said slide table outside of the casing to said g, and for controlling turning ost of said disc storage areas on is

4,755,979

PRODUCING SYSTEM FOR COMPENSATING MECHANICAL IMPERFECTIONS

Dolby, 50 Walnut St., San Francisco, Calif. 94118
ation of Ser. No. 374,921, May 5, 1982, which is a continuation of Ser. No. 5,992, Jan. 24, 1979, abandoned, which is a continuation-in-part of Ser. No. 859,799, Dec. 12, 1977, abandoned, and Ser. No. 965,423, Dec. 1, 1978, abandoned. This ation Sep. 9, 1985, Ser. No. 774,017
Int. Cl.⁴ G11B 3/34
3 Claims

ng vertical deviation of the cartridge rtically fixed reference plane ensing vertical deviation of the disc

r being adapted to move the e error signal, said error signal

OPTICAL DISK AND RECORDING/REPRODUCIN DEVICE FOR OPTICAL DISK

Tomohisa Yoshimaru, Yokohama; Akihiko Doi, Tokyo, and Tetsuo Saito, Yokohama, all of Japan, assignors to Kabushi Kaisha Toshiba, Kawasaki, Japan
Filed Feb. 18, 1986, Ser. No. 829,954
Claims priority, application Japan, Feb. 19, 1985, 60-31 Mar. 18, 1985, 60-53738; May 10, 1985, 60-99031
Int. Cl.⁴ G11B 7/00, 27/36
69—54 8 Claims

1 An optical memory recording device for recording information on an optical memory means, said optical memory means including a recording layer selected from a plurality of recording layers each of which is of a different type, said recording layer having a first area for recording information and a second area containing a data representative of a specified layer among said plurality of layers, said optical memory recording device comprising:

means for generating a light having a prescribed light qu tity.

means for converging said light onto said recording layer,

means for detecting said light reflected from said second area of said recording layer, and for outputting a detection signal in accordance with said data representative of a specified layer; and

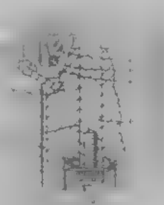
means, adapted to receive said detection signal, for contr ling said generating means to generate an optimum qu tity of light for said first area of said recording laye response to said detection signal

4,755,981

SPINDLE CLAMP FOR REMOVABLE

Donald L. Ekhoff, 14137 Hidden Spring La., Morg

ed Jan. 27, 1987, Ser. No
Int. Cl.⁴ G11B 17/28, 2



indle clamp comprising hub rotatable about an axis defined in a top en trough defining a w

pieces extend

urface defining a disk clamping face, a portion of w pieces engaging said wedge surface,

ans for biasing said jaw pieces inward toward said axis, a cap in contact with a top surface of said jaw pieces, means for biasing said cap downward against said jaw pieces, and

means for applying fluid pressure against said jaw piec said fluid pressure forcing said jaw pieces upward

4,755,982

DISC CASSETTE

Marcelles B. M. Douwes, Nuenen, Netherlands, assig Philips Corporation, New York, N.Y.
Filed Jan. 29, 1987, Ser. No. 8,513
Claims priority, application Netherlands, Jul. 21,

, which disc casette comprises
ble disc (1),

an external enclosure (2) having parallel main wa walls (4–6) and a front opening which communi a disc-receiving space,

ber (7) which closes the front opening and d partly inside (7B) and partly outside (7B) re (2), and

latching means for latching the closing member (7) in the enclosure, which latching means comprise

at least one resilient latching finger (8A, B) which is situated substantially in the same plane as the portion of the closing member which is situated inside the enclosure, which latching finger is connected to said member by a fixed end (10A, B) and carries an abutment portion (11A, B) near a free end, and which is pivotable against spring force in a direction perpendicular to said plane from a latched portion to a released position, and

a latching recess (12) which is provided in a side of a main wall (3A, 3B) facing the interior of the which comprises a circumferential adapted to cooperate, by abutment, w portion (11A, B) of the latching finger (8A, B),

racterized

that the main wall (3A, B) in which the latching 14) is present is formed with a slot (15) wh he front opening of the enclosure into th

the width of the sl tching recess (14

vers the end portion of the ening of the enclosure, in

rtion of the closing membe.

DEDICATED MESSAGE MATCHED FILT

Raymond J. Masak, East Northport, and Frank M Smithtown, both of N.Y., assignors to Hazeltine Corporatn Greenlawn, N.Y.
Filed Mar. 1, 1983, Ser. No. 471,549
Int. Cl.⁴ H04J 1/12 9/42; H04B

1 An apparatus for detecting informat spread spectrum waveform comprising

(a) means having a wavef coded, spread spectrum

(b) first means having an in output for determining the starting point of the code sequence of the spread spectrum waveform by the supplying means and having code outpu a signal corresponding to the de

) a matched filter having a filte

ntinuous wave signals corresponding to and

ECHO CANCELLER FOR BIDIRECT TRANSMISSION

Renato Ambrosio, San Raffaele Cimena; Carlo Bruno, Tur Giorgio Paschetta, Sommariva del Bosco, and Adler Tofanelli Collegno, all of Italy, assignors to SIP-Societa' Italiana p l Esercizio delle Telecomunicazioni P.A., Turin, Ital
Filed Mar. 16, 1987, Ser. No. 26,483
Claims priority, application Italy, Mar. 27, 1986,

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aid first and second inputs by

p/down counter connected to said first and second and saturable at a maximum count value of N, said eing enabled by a signal on said first output and rolled for up/down counting by a signal on said

g circuit connected to an output of said ting the sign of a counting performed

cting circuit receiving a line signal from mated echo signal has been subtracted,

tiplying circuit for multiplying signs supplied at f said sign extracting circuits,

ng one input connected to said first multiplying nput, and an output;

ected to said output of said adder and ther input of said adder the output signal elayed by a signalling period, said adder adding ls received at its inputs;

ltiplying circuit connected to said output of said counter for multiplying an added signal adder with an output signal from said e an output representing an echo signal m a signal to be received on said trans-

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4,755,985

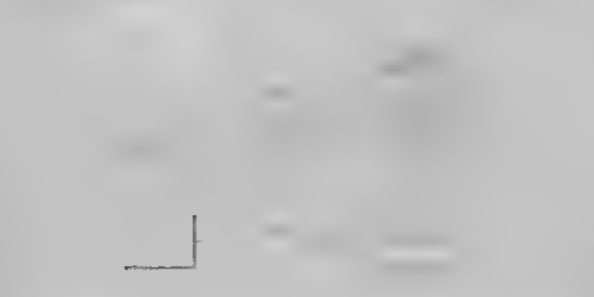
THOD AND APPARATUS FOR FACILITATING OVES AND CHANGES IN A COMMUNICATION SYSTEM

P. Jayapalan, Hollywood; Robert S. Town, Plantation, and Harendra H. Vora, Coconut Creek, all of Fla., assignors to Racal Data Communications Inc., Sunrise, Fla.

Filed Dec. 9, 1986, Ser. No. 939,841

nt. Cl.⁴ H04M *11/04*; H04Q *11/04*

58 8 Claims



of providing for moves and ch

said communication links coupled to a centr necting one of said user devices to one of said tion links

smitting a message from said one user devic nanager device through a central office to n nager device of a connection of said one user

said user devices to update a translation table in each said user devices, each said translation table serving provide a translation between a device code associated with each user device to a directory code associated with each of said communication links, so that when said connecting step is carried out, the first and second transmitting steps update translation tables in all user devices and he manager device

8. A user device suitable for connection to a communication channel to a central office, comprising

a transmission channel interfacing means for providing standard channel interfacing functions for the type of communication channel being used,

input means for allowing a user to supply a device identification code for another user to be contacted,

translation means, responsive to said input means, for translating said device identification code to a directory code;

call initiation means, responsive to receipt of said directory code from said translation means, for setting up a communication link over said communication channel, and

updating means, responsive to messages received over said communication channel, for updating said translation means when changes in relationships between said device identification code and said directory code occur

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4,755,986

PACKET SWITCHING SYSTEM

Hideyuki Hirata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 11, 1986, Ser. No. 906,282

Claims priority, application Japan, Sep. 13, 1985, 60-203816

Int. Cl.⁴ H04Q *11/04*; H04J *3/24*

U.S. Cl. 370—60 6 Claims

control means, connected to a line group, transmission control of a data packet, and pac means for receiving the data packet from said packet transmission control means to perform switching, wherein

said packet switching means comprises

packet separating means for separating the da a header part and a data part;

packet header processing means for updati header part,

packet data buffer means for storing the sepa

ining means for combining the output from said ta buffer means and the output from said packet ader processing means and supplying a combined ket to said packet transmission control means

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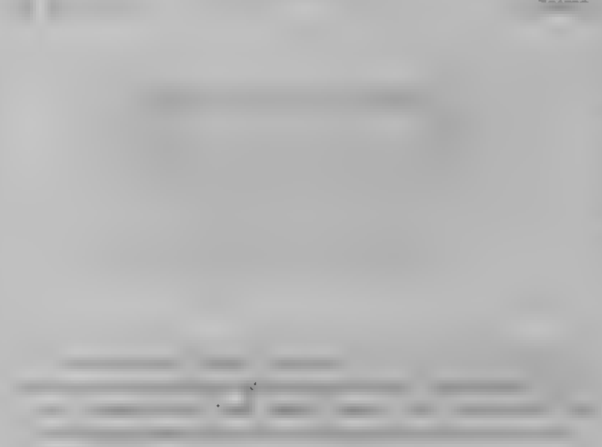
4,755,987

H SPEED SCRAMBLING AT LOWER CLOCK SPEEDS

J. Lee, Somerville, and Sang H. Lee, Bridgewater, both of N.J., assignors to Bell C Inc., Livingston, N.J.

Filed Jun. 5, 1987, Ser. No. 59,788

Int. Cl.⁴ H04J 3/02



stem further comprising means to achieve a desired scrambling sequence, $\{a_j\}$, of length J bits on said hig speed lines by the correct choice and phasing lent tributary scrambling sequences, $\{b_j\}$, $\{b_{j+n}\delta\}$, also of length J bits, which are used to scramble each of said tributary signals or to descramble such tributary signals at each of said multiplexing circuits, and wherein the number of lines being multiplexed, N, and J are chosen to be relatively prime, wherein said sequence $\{b_j\}$ is the first tributary scrambling/descrambling sequence and is equal to $\{a_j\}$ decimated by N, { wherein δ is the phase offset of each succeeding sequence from the said first tributary sequence lulo J,

ll be cyclically equivalent to {a and will be cyclically distinct

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DATA COMMUNICATIONS SWITCHING DEVICE HAVING MULTIPLE SWITCHES OPERATING AT PLURAL SELECTABLE DATA RATES

ry A. Nelson, Irvine, and Stillman F. Gates, Capistrano Beach, both of Calif., assignors to CXC Corporation, Irvine, Calif

ntinuation-in-part of Ser. No. 491,551, May 4, 1983, Pat. 587,651. This application Feb. 21, 1984, Ser. No. 582,182

Int. Cl.⁴ H04J *3/00, 3/16*; H04Q *11/04*

0—84 47 Claims

highways a of data switc section and a highway-to-station section, ea electrical commuication with a station port a of information highways that may operate a of speeds, and each section including co switchable, electrical contact with said sect switches being configurable to continuous variable bandwidth of information also configurable to select an inpu section from at least one of said plu ys and to select an output from a st at least one of said plurality of i data switches further including rate con selectably connects at least two of said data s to one of said station ports to increase the b mation comm and one of

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COLLIS

Walter Bohler, Stowe; Michael E. Forsberg, Underh mett Hughlett, Waterbury, and James B. Pitman, Ctr., all of Vt., assignors to Karl Suss America, I

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RING SHAPED DIGITAL COMMUNICATION SYSTEM AND METHOD FOR ACCESSING A MESSAGE CHANNEL IN SUCH SYSTEM

Hendrik M. H. G. Goertz, Eindhoven, Netherlands, assignor to U.S. Philips Corp., New York, N.Y.

Filed Jul. 7, 1986, Ser. No. 88..866

Netherlands, Jul. 15, 1985

sing and utilizing a message channel in iplex communication system in which digital information is transmitted between stations which are coupled to a unidirectional transmission ring, the ring including a monitor for generating an integral number of time division frames which cyclically traverse the ring, each such frame comprising a plurality of types of time slot fields, fields of the same type in consecutive frames constituting respective message hannels for transmitting digital messages between the ; such method being an arbitration procedure having a phase characterized in that

at least one of the message channels is utilized as an arbitration channel and each station wanting to transmit a message performs the following steps

reading the successive fields of the arbitration channel until the information in a field signifies that the arbitra- channel is free, and assigning a value ("NULL") so ying to such information,

anging the information in the first field in the tion channel following the field indicating that arbitration channel is free, for information transmit- such station having a value ("OCCUPIED") ng that the arbitration channel is now occupied,

ating steps (a) and (b) again if the information read (b) already has the value "OCCUPIED" until nformation read in step (b) has the value "NULL", whereupon such station has won the first phase of the arbitration procedure and consequently has obtained access to the arbitration channel;

and transmission by the station which has won such first phase of the arbitration procedure of its message field or in a plurality of consecutive fields of the

4,755,992

KET ACCESS OVER D-CHANNEL OF ISDN

re A. Albal, Sunrise, Fla., assignor to Racal Data Communications Inc., Sunrise, Fla.

Filed Jun. 6, 1986, Ser. No. 871,640

Int. Cl.⁴ H04J 3/24

U.S. Cl. 370—94 6 Claims

1. A method of providing transparent packet access on a l, comprising the steps of ding an address field, a

g said address, cont

single ISDN format LAPD packet

4,755,993

TRANSMISSION SYSTEM USING FORWARD ERROR CORRECTION

Wayne D. Grover, Edmonton, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Jul. 16, 1986, Ser. No. 886,128

Int. Cl.⁴ H04J 3/12

U.S. Cl. 370—110.1 10 Claims

8. Apparatus for transmitting a plurality of data streams comprising

synchronizing means for each data stream for synchronizing the data stream using fixed positive stuffing,

means for multiplexing the synchronized data streams together for transmission in time division multiplexed frames; and, in respect of at least one of the data streams

forward error correction (FEC) means for producing FEC information from the respective synchronized data steams and

means for replacing at least some of the fixed positive stuffing information of the respective C information

4,755,994

CAPACITY EXPANDER FOR TELEPHONE LINE

Lester H. Staples, Richfield, and James M. Kresse, Burnsville, both of Minn., assignors to Republic Telecom Systems Corporation, Boulder, Colo.

Filed Sep. 6, 1985, Ser. No. 773,358

Int. Cl.⁴ H04J 15/00, H04B 1/06

U.S. Cl. 370—118 12 Claims

1. A line expander for a telephone line comprising

means for receiving a first analog voice signal,

means for receiving a second analog voice signal

autocorrelation means for determining the pitch periods said first and second analog voice signals op pled to said means for receiving said analog sig

voice compression means operably coupled to said autocorrelation means, for compressing said first and second analog voice signals based on their respective pitch periods determined by the autocorrelation means, to form first and second compressed signals having respective band-

second analog voice signals,

audio frequency shifting means for shifting the s pressed signal to a frequency band above th pressed signal; and

means for simultaneously transmitting both same telephone line

4,755,995

PROGRAM UPDATE IN DUPLICATED SWITCHING SYSTEMS

Roy E. Anderson; Gerald A. Inberg; Dennis J. Mikalauskas, of Naperville, and Genevieve L. Nawa, Batavia, all of Ill., assignors to American Telephone and Telegraph Company, AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 20, 1985, Ser. No. 811,827

Int. Cl.⁴ H04M 3/24; G06F 11/16

Cl. 371—9 15 Claims

1. In an arrangement comprising a first and a second processor each having an active and a standby state, wherein a pro- the active state controls operations of said arrange ch processor comprising a first generic program for g operation of the processors in controlling said ar- nt, a method of replacing said first generic program ing the steps of:

ing said first processor in the active state and placing said second processor in the standby state,

replacing the first generic program in said second processor with a second generic program, said second generic program being different from said first generic pr

initiating by said first processor performance quence by said second processor, said test sequence being designed to test the accuracy of operation of said second processor under the control of said second generic pro-

first processor to determine sor has properly executed the t

Shunichi Masuda, Tokyo, Japan, assignor Kaisha, Tokyo, Japan

Continuation of Ser. No. 525,781, Aug. 10, 1983, abando

This application Aug. 18, 1986, Ser. No. 897,540

Claims priority, application Japan, Aug. 26, 1982, 57-1481 Aug. 26, 1982, 57-148171; Aug. 26, 1982, 57-149638; Aug. 1982, 57-154119; Aug. 26, 1982, 57-154120; Aug. 26, 1 57-154121

Int. C

U.S. Cl. 371—16

1. An image forming

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to a transfer of data between said

he data necessary for operation con

means, wherein said trans-
rial pulses, and wherein said
said data line coupled
ter means

4,755,997

MPUTER PROGRAM DEBUGGING SYSTEM

ji Takahashi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 2, 1986, Ser. No. 914,319
priority, application Japan
1985, 60-265041
Int. Cl.⁴ G06

nth
toreo
program debugging device which issues a
rrecting an error in said program to said arith
troller, said program debugging system com-
prising

- a readout data addressing unit, incorporated in said program debugging device, for specifying an address of data which a debugging operator desires to read out, in case of oc rence of an error in said arithmetic/logic controller
- an address setting memory incorporated in said arithmeti logic controller and operative to write an address specified by said readout data addressing unit,
- a data readout commander incorporated in said program debugging device and operative to command a readout r-causing data at the occurrence of

r incorporated in said arithmetic/logic con-

incorporated in said arithmetic/logic control-
rom said data
data which

ter,

- said program debugging device including a first interfa and said arithmetic/logic controller including a seco interface;
- a data memory incorporated in said arithmetic/logic co troller for storing data read out by said data register and delivering the data to said program debugging device through said interfaces, and
- said program debugging device including a data receive/edit unit, said data receive/edit unit being operative to receive sent from said data memory through said interf o edit the data

4,755,998

CODED MODULATION SYSTEM

Robert G. Gallager, Lexington, Mass., assignor to Codex Corporation, Mansfield, Mass.

Continuation of Ser. No. 577,044, Feb. 6, 1984, abandoned. T application Sep. 25, 1986, Ser. No. 911,664
Int. Cl.⁴ H04L 5/12; G06F 11/10
U.S. Cl. 371—30 14 Claim

modulation system for sending digital symbols gene ed by a data source over a band-limited channel in acco ance with a sequence of multi-dimensional points each com sed of a plurality of two-dimensional modulation signal and each selected from an available alphabet of said ensional points by an encoder on the basis of a gro ligital symbols, the improvement comprising
try connected to be responsive to said data ccumulating said symbols of each said grou
ircuitry connected to be responsive to said acc circuitry for thereafter selecting said multi-dimensional point for said group, and wherein
said available alphabet comprises a plurality of subsets said multi-dimensional points, and
the subset from which the multi-dimensional lected for each said group depends on the subset from which the multi-dimensional point is selected for another said group

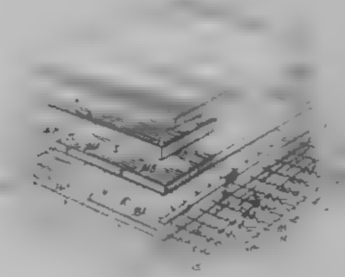
LASER APPARATUS UTILIZING A MAGNE ENHANCED ELECTRICAL DISCHARGE

John A. Macken, 3755 Wallace Rd., Santa Rosa, Calif.

Continuation-in-part of Ser. No. 715,458, Mar. 25, 1985. This application Aug. 1, 1986, Ser. No. 892,782
Int. Cl.⁴ H01S 3/0
U.S. Cl. 372—37 43 Claim

for producing a generally uniform, electric discharge, the steps comprising:
providing a gaseous filled cavity betw electrically insulating facing surface

g a magnetic field oriented in a direction genera gonal to said surfaces, and
oviding an electrical field sustaining at least one el discharge within said gaseous filled cavity or

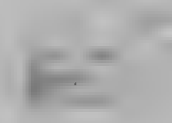


nagnetic field and said electric field pr d discharge is generally spread over at least substantial part of said cavity to form a high aspect ratio generally stable discharge

4,756,000

DISCHARGE DRIVEN GOLD CATALYST W APPLICATION TO A CO₂ LASER

ken, 3755 Wallace Rd., Santa Rosa, Calif. 95404
Filed Feb. 18, 1987, Ser. No. 16,063



through said CO₂ laser g
decomposition of CO₂ in s
ide, oxygen, and energet
feature comprising
inside said envel
gold
said gold surface is positioned and configured as to promo contact with both said carbon monoxide and said energetic forms of oxygen generated in said amplification volume for purposes of catalizing formation of CO₂

4,756,001

AS DISCHARGE TUBE FOR AN I

Ulrich Heynisch, Graefelfing; Klemens Hübner, Ottobrunn; Erwin Hübner, Grafing; Hans Krueger, Munich, and Hans Golser, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 20, 1986, Ser. No. 898,120
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1985, 3534925
Int. Cl.⁴ H01S 3/03

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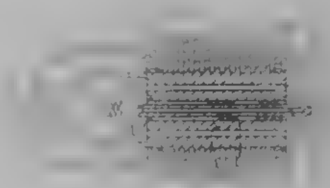
having a substantially cylindrical wall



and thermally conduc
said coil includes one
substances between
al, and
eliminating de
a channel for

4,756,00

LASER DIODE COUPLE

Neil F. Ruggieri; Jimmie D. Copple, both of St. Lo and Gordon H. Burkhart, Bellefontaine Neighbors, assignors to McDonnell Douglas Corporation, St.
Filed Jun. 23, 1986, Ser. No. 877,3

provement comprising mea
pump source along a plura

off axis

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D SOLID STATE LASER

as M. Baer, M ew, and Mark S. Keirstead, San Jose, both of Calif to Spectra-Physics, Inc., San

ontinuation-in-part of Ser. No. 811,546, Dec. 19, 1985, Pat. No. 4,656,635, which is a continuation-in-part of Ser. No. 730,002, May 1, 1985, Pat. No. 4,653,056. This application Apr. 7, 1987
Ser. No. 35,530
The portion of the term of this patent subsequent
2004, has been disclaimed.

r diode pumped, comp

he laser rod in fixed position
end forward
patial mode extended emitter laser diode secured in ousing behind and in optical alignment with the rod aving its near field beam pattern focused on the back f the rod for pumping the rod, and having an output ency which is absorbed by the rare earth to excite the rod said diode having an active emitting region h supports a plurality of spatial modes simulta

fining a laser cavity mounted in the avity the laser cavity means ans,
ide the laser rod a region of absorp age of the laser diode with a lasing laser cavity

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4,756,004

F BAKING ELECTRODE WITH PRESSURE ADVANCEMENT

Earl K. Stanley, 2790 Lynn Dr., Frederick, Md. 21701, and James M. Black, Route #1, Box 170A, Beverly, Ohio 45715
Filed Feb. 13, 1987, Ser. No. 15,152
Int. Cl.⁴ H05B 7/0

373—89 12 Claims

elf baking electrode comprising conductor means for ted electrode paste and baked electrode paste

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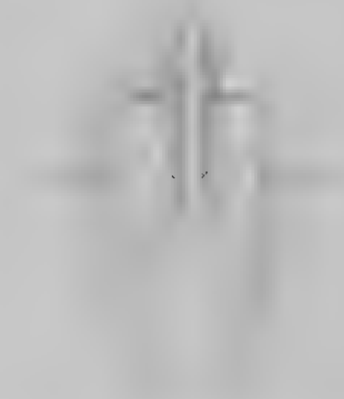

4,756,00

DIGITAL SIGNAL REGENERATOR ARRANGED F FAULT LOCATION

Dennis A. Shedd, Lexington, Mass., assignor to American Te phone and Telegraph Company AT&T Bell Laborator Murray Hill, N.J.
Filed May 27, 1986, Ser. No. 866,902
Int. Cl.⁴ H04B 3/4
U.S. Cl. 375—3.1

3 A digital signal rege generator comprising
ns for regenerating a sequence of four-level signals.
means for decoding the sequence of four-level signals into first and second sequences of binary signals, the second sequence of binary signals being the same as the first sequence of binary signals but delayed
means for delaying the first sequence of binary delayed first sequence of binary signals, and
means for comparing the delayed first sequen signals with the second sequence of binar produce an error pulse when concurrent bi layed first and the second sequences of bina different from one another

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4,756,00

BUS TRANSCEIVER

Dale A. Rickard, Manassas, Va., assignor to Inte ness Machines Corporation, Armonk, N.Y.
Filed Feb. 26, 1986, Ser. No. 832,94
Int. Cl.⁴ H03K 17/69

1 An interface circuit for coupling a data port of a device to a data bus, to enable the device to output a data signal to said bus during a first interval and sense the status of said data signal on said bus during a second interval, comprising
an output latch having a data input connected to said data port of said device, a clock input connected to a clock source which provides a periodic clocking signal with each period thereof being divided into said first inter and said second interval, said output latch having output, for latching a data signal at said data input th when the clock signal at said clock input thereof has low-to-high transition;
an output driver having a data input connected to said data utput of said output latch, a data output node, and a nput connected to said clocking source, for transm lata signal present at said data input thereof to sai utput thereof when said clocking signal at said clock nput thereof has as high-to-low transition,
ransparent latch having a data input connected to the data utput of said output driver, a clock input connected to id clock signal source, and a data output, for transmit s data signal at said data input thereof to said data ereof during said first interval defined to start at -to-low transition of said clock signal and to end the next low-to-high transition of said clock signal
verting isolation device having a data input con said data output of said transparent latch and a tput, for inverting the signal output from said transpar t latch, said output of said inverting isolation device eing connected to said data bus,
id data signal applied to said data in being transmitted through said out transparent latch and through sa device to said data bus during said first interval,
a sense receiver having a data input connected to said data bus, a data output connected to said data output node of said output driver, and a clock input connected to said clock signal source, for transmitting the signal condition aid data bus from said data input hereof to said data hereof during said second d clock signal low-to-hig ntinues until the next hig ce,
ng signal passage between its data pu thereof during said second inter-
n input latch having a data input connected to said output node of said output driver, a data output connected to said data port of said device, and a clock input connected to said clock signal source, for receiving said signal condi tion transmitted during said second interval throug sense receiver from said data bus, and latching sa

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4,756,00

ADAPTIVE COMMUNICATION RATE MODEM

Shahid U. H. Qureshi, Natick; Karl W. Seitz, Norfolk Robert M. Wilson, Walpole, all of Mass., a Corporation, Mansfield, Mass.

on said chan
ing

ured, based o

MODULATOR

Kazuo Yagi, and Tadayuki Kamisaka, b assignors to Hitachi,
Filed Feb
Claims priority, application
Mar. 3, 1986, 61-43966
Int. Cl.⁴

parallel data digita quadrature phase impulse response waveforms represented pling points for each bit of the I data and C nterpolating means for re-sampling each

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Q data from said interp.

…ETHOD FOR TRANSMITTING DIGITAL DATA

…r Braun, Wettingen; Dacfey Dzung, Nussbaumen, and Walter Hagmann, Dattwil, all of Switzerland, assignors to …Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Jul. 2, 1986, Ser. No. 881,235

Claims priority, application Switzerland, Jul. 15, 1985

Int. Cl.⁴ H04B …, H04L 27/…

…ethod for demodulating a carrier wave, said carrier being composed of several transmission sections, each transmission section having a separate frequency which is modulated by means of phase shift keying and each transmission section containing data in the form of a plurality of symbols in such a manner that at least one symbol of a transmission section is also a member of another transmission section, said method comprising the steps of:

generating for each of said transmission sections a sinusoidal signal having essentially the separate frequency of the …arrier wave corresponding to said transmission section …ut an arbitraty phase relationship relative to said separate …hase of said corresponding carrier wave;

multiplying the received phase modulated carrier wave separately by said sinusoidal signal and a signal derived from said sinusoidal signal by a 90°-phase shift for each of said transmission sections,

extracting from each of the products of the multiplying steps the constant components for each of said symbols by … out the frequency components,

… …ch of said symbols a comple…

…nts are said con…

…f said multiplic…

…h of said comple…

…rigianl angle;

… the components …

…etermining separately the mean values for the … …maginary components of all said rotated complex … …ne of said transmission sections …

…g from the ratio of said mean values via the for… …f an arc-tangent function and subsequent divisio… by the number n a provisional carrier phase for each … said transmission sections,

…emodulting said received phase modulated carrier wav… …y means of said provisional carrier phase…

…cating each demodulated symbol a c… …presenting its individual state,

… for each symbol multiply transmitted in differ… …d transmission sections, identified by indices i an… …responding of said representative … …e by the complex number of the … …s multiplied with the conjugate … number of the k-th transmission sect…

determining complex phase difference…

allocating all of said complex phase … value the number exp(jO…

forming m sums $S_i(i=1$, …

… …nkown complex phase difference i the …-th transmission section between said provisional carrier phase and said final phase, and a_K^* is the conjugate complex value of the respective phase difference in the k-th transmission section,

…etermining the one of said sums S_i … real component,

determining the index of said determined sum, and

if said smallest real component is positive, taking the complex phase differnce a_i of said determined sum as the complex phase differences used in said provisional carrier phase correction,

if said smallest real component is not positive, performing another iteration, wherein the argument of said initial values of said complex phase differences are all corrected by the value $-2\pi/n$; and

obtaining said final phases by correcting said provisional carrier phases with a phase angle which in each case corresponds to the negative argument of th… …ing of said complex phase difference

4,756,010

ASYNCHRONOUS/SYNCHRONOUS DATA RECEIVER CIRCUIT

Leonard E. Nelson, Boynton Beach, and Charles M. Mellone, Boca Raton, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 7, 1985, Ser. No. 795,797

Int. Cl.⁴ H04L 27/0…

U.S. Cl. 375—94 20 Claims

1. A circuit for detecting a data signal, said data signal including an address followed by a message, said circuit comprising in combination:

asynchronous address detector mea… detecting said address,

synchronous clock recovery means for synchronizing … recovered clock signal to said message; and

…ializing means, connected between said asynchronous …ddress detector means and said synchronous clock recov-

---

4,756,011

DIGITAL PHASE ALIGNER

Robert R. Cordell, Tinton Falls, N.J., assignor to … …cations Research, Inc., Livingston, N.J.

Filed Dec. 24, 1986, Ser. No. 94…

…ampling the the … …lity of phases, w… …g disagreement signals indicating the … …f data transitions between any pair of sa…

…r means for storing simultaneously over a plural… …intervals a sequence of in-phase samples of the …

…ans for storing simulta… …tervals a sequence of an…

…, Palo Alto, C…

… carrier comps …

…nter means for c…

…r compartment …

…e guide means …

4,756,013

…ULTI-FUNCTION COUNTER/TIM… COMPUTER SYSTEM EMBODYING THE SA…

Evert D. Van Veldhuizen, Eindhoven, Netherlands, ass… U.S. Philips Corporation, New York, N.Y.

Filed Apr. 23, 1986, Ser. No. 855,5…

Claims priority, application Netherlands, A… …501,20…

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nter connectable to the data lin
parator unit connected to said counter for producing
nal when said counter reaches a preselected

l two or more output lines, said qualification unit in-
ling plural means for storing a plurality of logic states
data line for generating a signal on
l output lines in response to said con-

4,756,014

IAL X-RAY DIAGNOSTICS INSTALLATION

Michael Dobert, Lorsch, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Dec. 17, 1986, Ser. No. 942,800

Claims priority, application Fed. Rep. of Germany, Dec. 20,

Claim

paratus for panoramic
r radiation source hav-
ette, a common carrier
said source and holder being mounted opposite one another on said carrier, first adjacent means for moving the carrier with he source and holder around a subject, said holder having a
g with a first slot-shaped opening through which a film
e is introducable and withdrable, and means for moving
sette relative to the x-ray source during exposure as well
ive to at least one diaphragm with a second slot-shaped
g in the housing and arranged in a beam path between
iation source and cassette, the improvements compris-
film cassette being a flexible film cassette enclosing the
o be exposed, and said means for moving the cassette being an electromotive drive arranged in the housing of the film cassette holder adjacent to the second slot-shaped opening and behind the diaphragm such that, when the housing is positioned for taking a panoramic tomogram, said electromotive drive is in line with both said second slot-shaped opening and said exit slit, said electromotive drive of the means for moving the cassette containing at least one drive member and at least one correspondingly arranged cooperating member, means for biasing at least one of the members towards the other

X-RAY SCANNER

Gerhard Doenges, Heidenrod, and Cornelius Koch, Wiesbaden, both of Fed. Rep. of Germany, assignors to Heimann GmbH, Fed. Rep. of Germany

Filed Jun. 4, 1987, Ser. No. 57,317

Claims priority, application Fed. Rep. of Germany, Jul. 14 1986, 3623722

Int. Cl.⁴ G01N 23/08

3. An x-ray scanner comprising
an x-ray source which generates a fan-shaped x-ray beam,
conveyor means for moving an article to be inspected through said fan-shaped x-ray beam,
a plurality of detectors disposed for receiving radiation attenuated by said article, each of said detectors generating an electronic signal as an output in an associated detector channel corresponding to the attenuated radiation incident on the respective detectors,
an analog-to-digital converter connected to each of said detector channels which converts the signals in each of said channels to respective digital signals,
an image memory;
a control unit means for controlling entry of data from each of said channels from the analog-to-digital converter into said image memory, said control unit means including a comparator which recognizes faulty detector signals,
an allocator unit means connected to each of said detector channels and to said control unit means for inhibiting transfer of data from selected channels by said control u
means into said image memory to geometrically balan
the outputs of said detectors and, upon identification of a faulty detector signal by said comparator, for inhibiting transfer of data from a channel having said faulty detector signal instead of inhibiting transfer of data from one of said pre-determined detector channels; and
means connected to said image memory for constructing and displaying a visual image of said article from the contents of said image memory.

4,756,016

ASYMMETRIC X-RAY STAND

John K. Grady, XRE Corporation, 300 Foster St., Littleton, Mass. 01460, and Gordon D. Row, Belmont, Mass., assignors to John K. Grady, Harvard, Mass.

Filed Mar. 6, 1987, Ser. No. 22,40

Int. Cl.⁴ A61B 6/00; H05G 1/0

U.S. Cl. 378—197 6 Claims

1. X-ray apparatus for examination of a patient comprising
a main support rotor mounted to turn about a central axis lying in a central plane;
an angularly adjustable parallelogram formed by two members parallel to the central axis and two members transverse of the central axis, and
a radiation source and a radiation recepto
one end of respective parallel members.

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n an opposite side of said

rom said fir
with parallel

4,756,017

TELEPHONE TEST DEVIC

Gary K. Bush, Tustin, Calif., assignor to Golden Stat
cations Service, Inc., Santa Ana, Calif.

Filed Mar. 23, 1987, Ser. No. 29 25

1. A test apparatus for use between a two wire
company-controlled line and a customer's telephon
ment to indicate the operability of the line and the equipment, comprising.
a first indicator of current flow,
a second indicator of current flov
a first switch having
a first position electrically connecting the telephone-com
ny-controlled line to the customer's equipment throu
the first indicator, and
second position electrically connecting the two wires
the telephone-company controlled line to each oth
through the indicator,
wherein the operability of the first and sec
testable, the test apparatus further com
a voltage source, and
a second switch having
a first position presenting an open circu
a second position electrically connecting the volta
source, the first indicator and the s
series in a closed loop

HAVING LOOP-CI
INTRA
Ryuhei Fujiwara, To

Filed Apr. 2, 1987, Ser
riority, application Japan,

on con
nd a remote
s, comprising
ral-station line interface circuits
ed to subscriber line terminals of s
tem and terminated at the central
and M central-station trunk cir
than N, connected respectively
tation switching means to establish switched
therein,
spectively conn
remote-station l
detecting a loo
sh switched connections t
k means associated with
hed between t
tion and causing s
fy the last-mention

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D AUTOMATIC NETWOI
SYSTEM FOR TELECOMMUNICATION
NETWORKS

ł. 15, Avenue Francois Besson, 1217 Meyrin,

Filed Aug. 27, 1986, Ser. No. 900,75
Int. Cl.⁴ H04M 15/32

m comprising

h the

being determined depending on distance between nodes and on other parameters including type of

d tariffs for providing the nodes with
g connections within the network of

4,756,020
METHOD AND APPARATUS FOR DISALLOWING THE EXTENSION OF A CALL THROUGH A NETWORK

Joseph V. Fodale, Lincroft, N.J., assignor to American Telephone and Telegraph Company, AT&T Bell Laboratories, Murray Hill, N.J.

ontinuation of Ser. No. 771,557, Aug. 30, 1985, abandoned
This application Nov. 2, 1987, Ser. No. 117,392
Int. Cl.⁴ H04M 1/66 3/38
379—112 44 Claims

25. Apparatus for disallowing an extension through a telecommunications network of a call orginated from a calling ng.

oring payment status of a billing num-
calling customer line, and

4,756,021
TELEPHONE SET

asmobu Nakayama, Hachioji, Japan, assignor to Kabu Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 24, 1986, Ser. No. 843,274
priority, application Japan, Mar. 28, 1985, 60-64
Int. Cl.⁴ H04M 9/00

1. A telephone set adapted to be coupled to a te and having a telephone circuit, a hands-free circui ing said telephone set in a hands-free mode, a handset connected to said telephone circuit and a speaker connected to said hands-free circuit, said telephone set comprising

a mechanical switch having a contact actuat handset to operatively connect said teleph said telephone line.

semiconductor switch means disposed between said telephone line and said hands-free circuit in parallel with said mechanical switch for operatively connecting said hands-free circuit to said telephone line, said semiconductor switch means being operative to connect said hands-free circuit to said telephone line only when the voltage of said telephoneline is above a predetermined level; input means for inputting hands-free mode selection information; and

control means responsive to the hands-free mode selection information and the state of said handset for controlling the operation of said semicorductor switch means wherc

tion

picked t

IRCUIT FOR THE TRANSMISSION
TELEPHONE SIGNALS

rco Siligoni, and Pietro Consiglio, both of Milan, I assignors to SGS Microelettronica SpA, Milan, Italy

Filed Oct. 24, 1985, Ser. No. 790,971
s priority, application Italy, Oct. 31, 1984, 23419 A/84
Int. Cl.⁴ H04M 1/6

nals respectively coupled to first and s said circuit comprising a threshold compa second input terminals respectively coupled to said first and second line terminals, and an output terminal coupled to a point between said signal generator and said two-wire trans- line, a threshold of said comparator being selected such n a voltage between said first and second terminals of

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generates an output signal wh
amplitude of negative peaks
ted by the transducer circuit

4,756,023
DIVERSITY RECEPTION RADIO RECEIVER

Tatsuru Kojima, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jul. 16, 1986, Ser. No. 886,021
Claims priority, application Japan, Jul. 22, 1985, 60-162734
Int. Cl.⁴ H04B 7/08
U. 455—134 12 Claims

t voltage corres
agnetic signal wa

ated receiver;

omparator means for comparing the outputs of wave envelope detectors and for generating g control signal in response ther parator means changing a th n response to the vave envelope

means responsive g control signal tween first and second duced by the first and hing between said first gnals occurs only after the hold level of change

Karl-Heinz Kupfer, Kr
U.S. Philips Corpor
Filed Mar. 11, 1986, Ser
Claims priority, application Fed. Re

Int. Cl.⁴ H0

he U
us fr
bandp
paralle
pass fi
tance (27), series-arranged second a
and 31) coupled between an output
bandpass filter (34) and the first indu
variable capa
switch (35) sh
switching-over between a first and a second
band, characterized in that a hyperband p
filter is integrated in the VHF primary ban
hyperband primary ba
tance (53) coupled vi
and to an input conn

OPTICAL FIBERS

Dieter Munz, Hochstadt; Gerhard Rumold, Bubenreuth Klaus Schmiedel, Erlangen, all of Fed. Rep. of Germ assignors to Siemens Aktiengesellschaft, Munich, Fed. R Germany

Filed Oct. 7, 1986, Ser. No. 916,19
Claims priority,
1985, 3538481

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lata message being sampled during tl
portion synchronously with the clock p

led during tree

DESIGNS

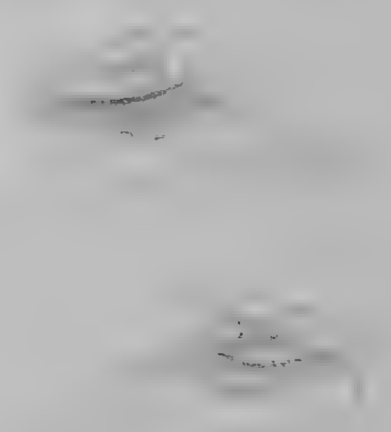
296,490
GING SHOE OR SIMILAR ARTICLE

chine, 626 S. Hudson Ave., Los Angeles, Calif.
iled Feb. 15, 1985, Ser. No. 701,992
Term of patent 14 years

Mass., assignors to Reebok International Ltd., Cant
Division of Ser. No. 11,703, Feb. 6, 1987, Pat. No. De
This application Oct. 9, 1987, Ser. No
Term of patent 14 years

296,491
SHOE UPPER

n A. Diaz, Weymouth, Mass., assignor t
onal Ltd., Canton, Mass.
Filed Jul. 16, 1987, Ser
Term of patent 14



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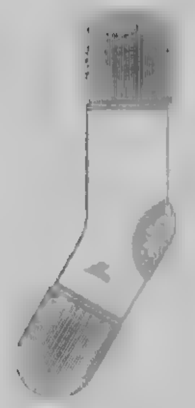
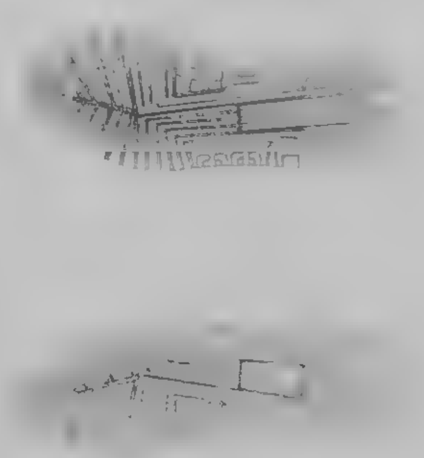
LE SUPPORT SOCK
Chatham Lake Dr., Virginia Beac

R, 1985, Ser. No. 777,42



296,495
SHOE SOLE
unstable, Mass., and Miza Mourad, Portland, Oreg., assignors to AVIA Group International, Inc., Portland, Oreg.
Filed Sep. 24, 1987, Ser. No. 100,702

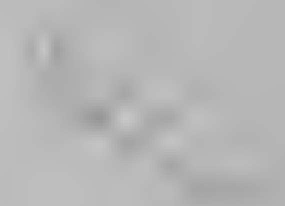


ng, 2885 W. 7th St., Los Angeles, Calif.
Filed Jul. 15, 1985, Ser. No. 754,94
Term of patent 14 years

296,497
CARRIER CASE
James W. Kime, Birmingham, Ala., assignor to tries International, Inc., Atlanta, Ga.
Filed Jul. 24, 1985, Ser. No. 758,42
Term of patent 14 years

Christopher Collins; Wallace Tench, both of South Yarra; Cvetan Petroff, Northcote, and Alfred Blochlinger, South Yarra, all of Australia, assignors to McPherson's Limited, Melbourne, Australia
Filed Nov. 6, 1985, Ser. No. 803,910
Claims priority, application Australia, May 7, 1985.
Term of patent 14 years

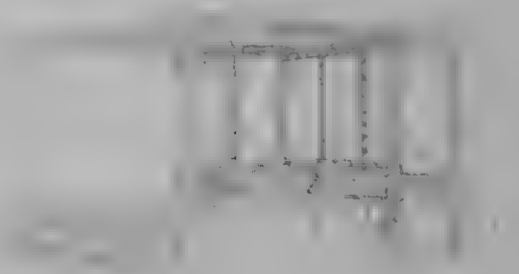
296,499
HAISE
er, 4324 E. Broadway, Long Beach, Calif. 90803
Filed Jul. 3, 1985, Ser. No. 752,241
Term of patent 14 years



Richard

D. Lundquist, R
Filed N

Hoey T. Keller, High Point,



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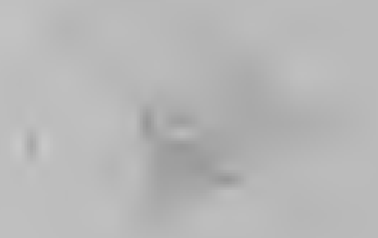
296,503
ERCHANDISE DISPLAY RACK
Bell, and Gordon N. Mawhinney, both of Coshocton, assignors to Pretty Products, Inc., Coshocton, Ohio
Filed Jul. 5, 1985, Ser. No. 752,126

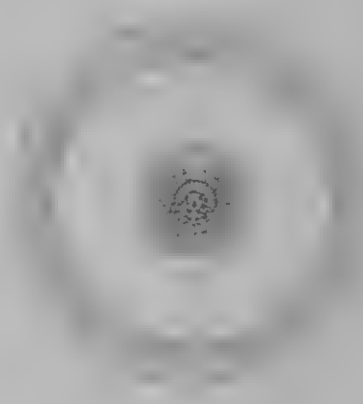
296,504
MERCHANDISE DISPLAY
ed A. Bell, and Gordon N. Mawhinney, both of Coshoc
Ohio, assignors to Pretty Products, Inc., Coshocton, Oh
Filed Jul. 5, 1985, Ser. No. 752,125
Term of patent 14 years

296,505
DISPLAY CABI
mas Kalski, 55 Marion La., Jericho, N.Y. 11753; Karen E. Pearse, 9 Truxton Rd., Dix Hills, N.Y. 11746, and Steve itnick, 79 Spring Rd., Huntington, N.Y. 11743
Filed Feb. 24, 1986, Ser. No. 835,323
Term of patent 14 years



296,506
DRINKING TUMBLER OR SIMILAR ARTICLE
Daniel J. Obendorfer, Holland, and John A. Tuttle, Perrysbur both of Ohio, assignors to Libbey Glass Inc., Toledo, Ohio
Filed Jun. 7, 1985, Ser. No. 742,667
Term of patent 14 years

, assignors to Oneida Ltd., One
Filed Apr. 19, 1985, Ser



SPOON OR SIMILAR ARTIC
llen B. Manderfield, Sherrill, N.Y., assignor
Oneida, N.Y.
Filed Nov. 22, 1985, Ser. No. 80
Term of patent 14 years

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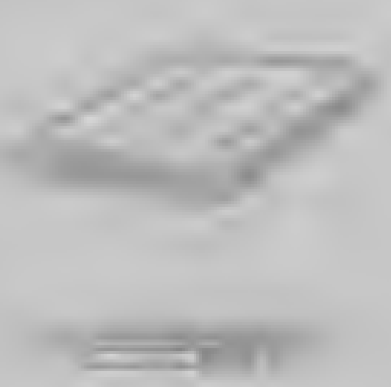
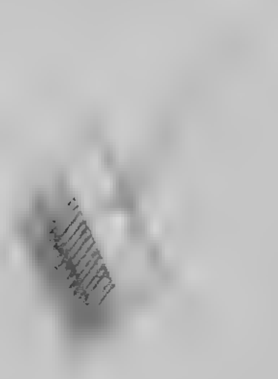
Nagoke-Ch Osaka,

27, 1985, Ser. No. 814,19
application Japan, Jul. 4, 1985, 60 28
Term of patent 14 years

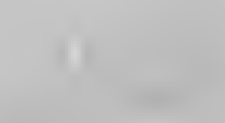


296,510
ED RAKE AND COLLECTOR
en, 5721 Riverview, St. Louis, Mo. 6314
led Apr. 13, 1987, Ser. No. 37,40
Term of patent 14 years



296,511
TOMOBILE FUSE PULLER AND INSERTER
lies, P.O. Box 1396, Medina, Tex. 7805
d Sep. 16, 1985, Ser. No. 776,40
Term of patent 14 years

ADAPTOR TURNING
ranklin A. Robblee, Drexel Hill, Pa.,
Valve Co., Inc., Elizabeth, N.J.
Filed Sep. 19, 1985, Ser. No
Term of patent 14 yea

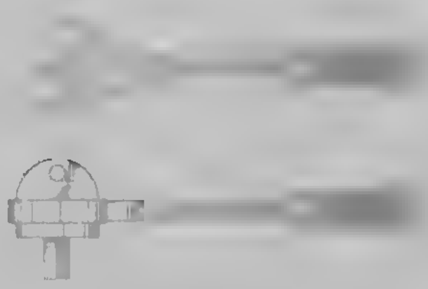


296,513
QUICK GRIP PIPE WRENCH
R. Moore, Jr., and B. Diane Moore, both o
Gilbertsville, Ky. 42044
Filed Sep. 20, 1985, Ser. No. 778,42
Term of patent 14 years

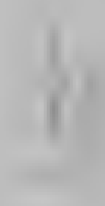
D8—25

296,514
RATCHET WRENCH
Bygren, Box 1305, Bozeman, Mont. 59715
Filed Jul. 15, 1985, Ser. No. 755,09
Term of patent 14 yea

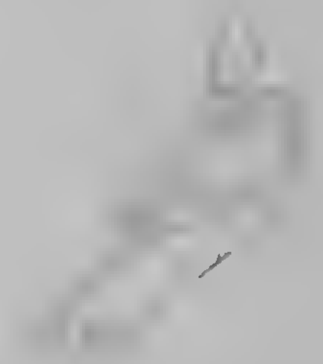
S. Cl. D8—25



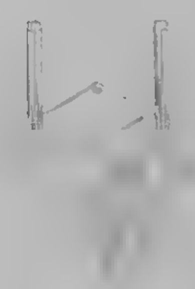
296,515
PISTON PIN REMO
, 1008 Beatrice Dr., Dayton, Ohio
Filed Jul. 19, 1985, Ser. No. 756,72
Term of patent 14 years



296,516
ELECTRIC SCISSORS
1, 404 W. 20th St., New York, N
Filed May 8, 1985, Ser. No. 732,2
Term of patent 14 years



296,517
BAND SAW STAND
P.O. Box 217, Yanceyville, N.
Oct. 15, 1985, Ser. No. 787,04
Term of patent 14 years



abandoned. This applicatio

296,519
PADLOCK OR SIMILAR AR
Donald J. Newman, Sommerville, and John A
mont, both of Australia, assignors to Ogden Indu
Ltd., Huntingdale, Australia
Filed Jan. 17, 1986, Ser. No. 819,8
Claims priority, application Australia, Jul
Term of patent 14 years

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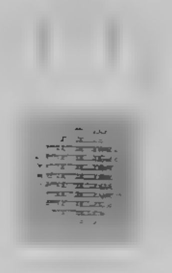
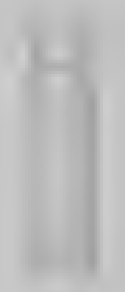
CKAGING CONTAINER FOR A DOSIMETER
Graham, 841 Vale View Dr., Vista, Calif. 92083
iled Apr. 4, 1985, Ser. No. 720,415
Term of patent 14 years



MP FOR A WINE BOTTLE
r, 60, Churchill-laan, Delft, Nether-

iled Mar. 5, 1987, Ser. No. 22,352
iority, application Benelux, Sep. 5, 1986, 15302-02
Term of patent 14 years



296,523
COMBINED CLOSURE MEMBER AND DIAPHRAGM
el M. Corno, and Giovanni Arduini, both of Milan, Italy, assignors to Resinart Plastics Ltd., Christchurch, New Zealand
Filed Dec. 11, 1984, Ser. No. 680,492
Claims priority, application New Zealand, Jun. 11, 1984, 19177; Jun. 11, 1984, 19178; Jun. 11, 1984, 19179
Term of patent 14 years
U.S. Cl. D9—

STOPPER FOR A WINE BOTTLE
ernardus J. J. A. Schneider, 60 Churchill-laan,

Filed Mar. 5, 1987, Ser. No. 22,351
Claims priority, application Benelux, Sep. 5, 1986, 15302-01
Term of patent 14 years
U.S. Cl. D9—43

CONTAINER LID
Howard P. Siegel, Yonkers, N.Y., assignor to American Home Food Products Inc., New York, N.Y.
Filed May 22, 1985, Ser. No. 736,732
Term of patent 14 years
U.S. Cl. D9—44

296,526
PUMP HEAD
Alfred von Schuckmann, Kevelaer, Fed. Rep. of Germany, assignor to mega product- u. Verpackungsentwicklung Marketing GmbH & Co. Kommanditgesellschaft, Wuppertal, Fed. Rep. of Germany
Filed Aug. 7, 1985, Ser. No. 763,162
Claims priority, application Fed. Rep. of Germany, Mar. 22 1985, 54 MR 15012
Term of patent 14 years
U.S. Cl. D9—41

ul. 25, 1985, Ser. No. 759,148
Term of patent 14 years

296,528
SAW CUTTING GUIDE
R.R. 2, Richards Landing, Ont.

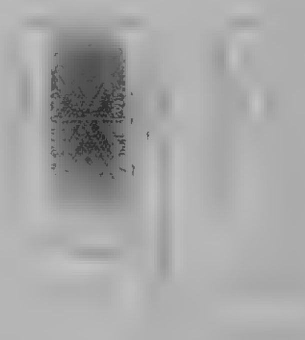
Sep. 30, 1985, Ser. No. 781,805
Term of patent 14 years

296,529
RADIO TESTING DEVICE OR SIMILAR ARTICLE
Kenneth W. Larson, Elmhurst, and Peter Janko, Streamwood both of Ill., assignors to Motorola Inc., Schaumburg, Ill.
Filed Aug. 12, 1985, Ser. No. 764,361
Term of patent 14 years

Zurich, Ill

cki, 24 Weisburg Street, Tel Aviv, both of Israe
Filed Mar. 11, 1985, Ser. No. 71

96,53
EMERGENCY LIGHT OR SIMILAR ART
Robert Kamensky, 2376 Rombold Rd., Hermitage,
Filed Nov. 15, 1
Term of
D—13



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5 Quail Meadow Ln., Charlotte,

1, 1985, Ser. No. 704,64
of patent 14 years

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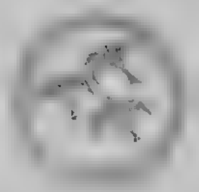
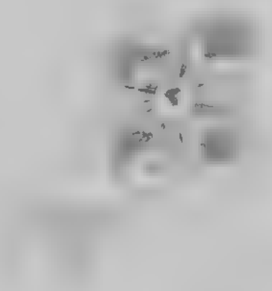
AQUE OR SIMILAR ARTICLE
, 11368 Burnham St., West Los

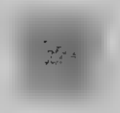
24, 1985, Ser. No. 748,159
n of patent 14 years



FLOWER POT COVER
Donald E. Weder; Erwin H. Weder, both of Highland, and Robert C. Abrams, Edwardsville, all of Ill., assignors to Highland Supply Corporation, Highland, Ill.

Continuation-in-part of Ser. No. 613,053, May 22, 1984. This application Nov. 14, 1986, Ser. No. 931,191
Term of patent 14 years

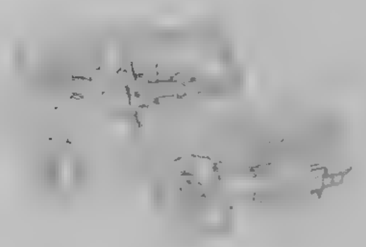




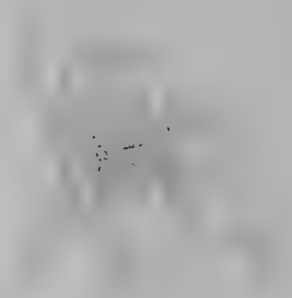
296,536
LOW-PROFILE BUCKLE
Attilio Lovato, Pino Torinese, Italy, assignor
Works, Inc., Chicago, Ill.
Filed Dec. 2, 1985, Ser. No. 803,61
Claims priority, application Italy, Oct.
955 B4[U]

Seoul, Rep. of Korea,
Seoul, Rep. of Korea
Filed Jul. 1, 1985, Ser. N
Term of patent 14 ye

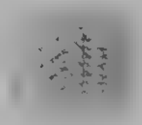
296,538
AUTOMOBILE
Rep. of Korea, assignor
Seoul, Rep. of Korea
Filed Jun. 28, 1985, Ser. No. 749,750
Term of patent 14 years



296,539
MOTORCYCLE
Yuki Yamada, Saitama; Makoto Kitagawa, Tokyo, and Toshio Kurihara, Saitama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 26, 1985, Ser. No. 780,561
Claims priority, application Japan, Apr. 30, 1985, 60-1780
Term of patent 14 years



erry K. Gettys, Pendleton, a
S.C., assignors to Michelin
rand
Filed Dec. 18, 1985, Ser.



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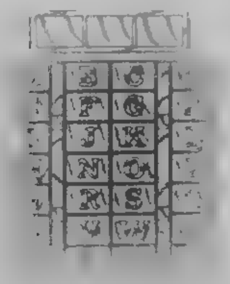
MOBILE FENDER FLAG MOUNT
ane S. Binford, Tulsa, Okla., assignor to Thrifty Re
Systems, Inc., Tulsa, Okla.
Filed Jun. 17, 1985, Ser. No. 745 0
Term of patent 14 years

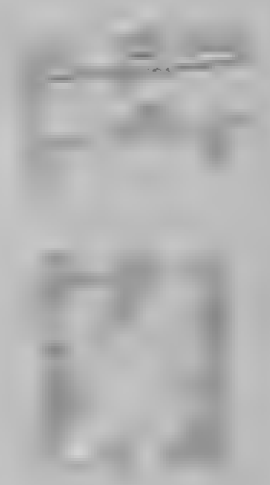
AUTOMOBILE INITIAL KIT
amuel M. Seltzer, and Saul Dennison, both of Livingston, N.J
assignors to The Allison Corp., Livingston, N.J.
Filed Oct. 21, 1985, Ser. No. 789,418
Term of patent 14 years



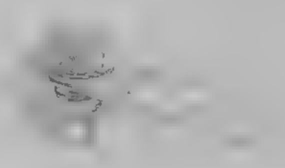
296,543
VEHICLE TIRE
mekichi Matsushita, Izumi-Ohtsu, and Masaaki Minamitani, Sennan, both of Japan, assignors to The Ohtsu Tire & Rubber Co., Ltd., Izumi-Ohtsu, Japan
Filed May 27, 1986, Ser. No. 867,713
Claims priority, application Japan, Jan. 25, 1986, 61 231
Term of patent 14 years

296,545
UNIVERSAL GROUNDING CLAMP
Sachs, 1240 Ridgewood Dr., Chomedey, Laval, Quebec, H7W 1L3
Filed Jun. 18, 1985, Ser. No. 745,957
Term of patent 14 years

ROUNDING A
COMBINATI
Isaac Sachs, 1240 Ridgewood Dr., Chomedey, Lav
Canada H7W 1L3
Filed Oct. 11, 1985, Ser. No. 786,528
Term of patent 14 years



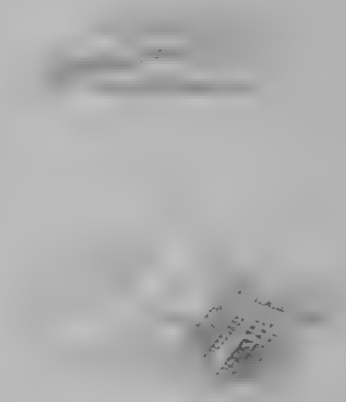
296,547
WIRE CONNECTOR
Isaac Sachs, 1240 Ridgewood Dr., Chomedey, Laval, Quebec, Canada H7W 1L3
Filed Jun. 18, 1985, Ser. No. 746,060
Term of patent 14 years



296,548
PROTECTIVE CAP FOR A CABLE CONNECTOR
George Laurie, Fremont, Calif., assignor to Icore International Inc., Sunnyvale, Calif.
Filed Feb. 8, 1985, Ser. No. 699,605
Term of patent 14 years

ton, Northbrook, Ill
Filed Feb. 3, 1986, Se
Term of patent 1

296,550
KEY TELEPHONE SET
Hiroshi Inaba, Kawasaki, Japan, assignor to
Kawasaki, Japan
Filed Jan. 18, 1985, Ser. No. 692,915
Claims priority, application Japan, Jul. 18, 1984, 59-29636
The portion of the term of this patent subsequent to Aug. 26 2003, has been disclaimed
Term of patent 14 years



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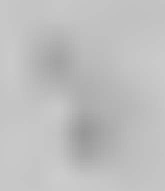
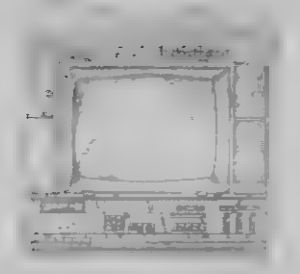
Tokyo, Japan
Filed Dec. 5, 1985, Ser. No. 804,895
ority, application Japan, Jun. 6, 1985
Term of patent 14 years



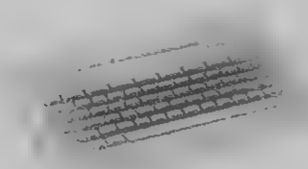
552
RECEIVER, STEREO AND TAPE CASSETTE PLAYER

okyo, Japan, assignor to BSR North America
rk, N.Y.
d Apr. 19, 1985, Ser. No. 724,885



296,553
COMPUTER

Filed Aug. 9, 1985, Ser. No. 764,006
Claims priority, application Japan, Feb. 14, 1985, 60-5390
Term of patent 14 years

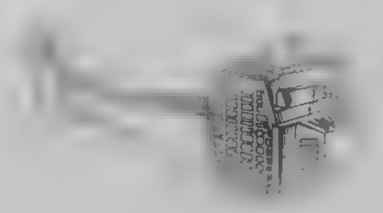


296,554
FLOPPY DISC DRIVE

Hajime Shiozawa; Kazumi Osaka, and Ken Kimata, Nagaike-cho, Abeno-ku, Osaka 545, Japan
Filed Apr. 1, 1986, Ser. No. 847,625
Claims priority, application Japan, Oct. 18, 1985
Term of patent 14 years

296,555
ENGINE HOUSING FOR A CLEARING SAW

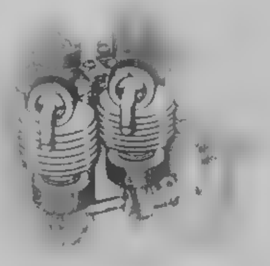
Lars-Goran Rosenblad, Granna, Sweden, assignor to Aktiebola get Electrolux, Sweden
Filed Nov. 27, 1985, Ser. No. 806,857
Claims priority, application Sweden, May 29, 1985, 85
Term of patent 14 years



296,556
BELLOWS PUMP

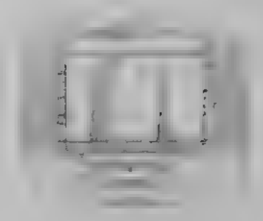
Norishige Hirakawa, Moroyama; Kazuhiko Sato, Kawagoe, and Satoru Hagiwara, Saitama, all of Japan, assignors to Iwaki Co., Ltd., Japan
Filed Nov. 24, 1986, Ser. No. 934,146

U.S. Cl. D15



HOOD FOR A LAWN AND GARDEN TRACTOR

chard D. Williams, Brentwood, Tenn., assignor to The M
Ohio Manufacturing Company, Brentwood, Tenn.
Filed Sep. 30, 1986, Ser. No. 913,854
Term of patent 14 years



296,558
SEWING MACHINE

shihide Yoneda, Osaka, Japan, assignor to Maru
Machine Co., Ltd., Osaka, Japan
Filed Feb. 11, 1985, Ser. No. 700,662
Claims priority, application Japan, Sep. 28, 1984, 59-40299
p. 28, 1984, 59-40300
Term of patent 14 years

DRAW TUBE AI

Drabinski, Elmira Height
ange Brothers, Inc., Elmira, N.Y.
Filed Nov. 13, 1984, Ser. No. 67
Term of patent 14 years

296,560
ROBOTIC WORK STATI

ohn B. Alexandersen, East Windsor; Mark
mouth Junction; Timothy E. Fitzpatrick,
N.J.; Melvin W. Fulp, Winston Salem, N
Yardley, Pa.; Efthimios G. Harokopos, Pla
Pawlenko, Levittown, Pa., and Richard A. Roll, Trent
N.J., assignors to American Telephone and Telegraph Co
pany, New York, N.Y.
Filed Jun. 19, 1987, S
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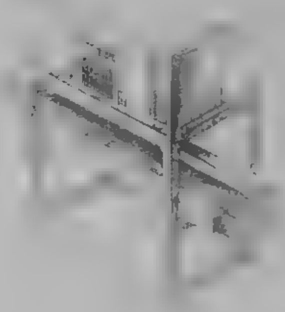

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assenberg, Fed. Rep. of Germany; Yoshiaki Sugiyama, Zushi; Tatsuo Konno; Yoichi Tosaka, both of Yokohama, and Hiromi Someya, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 31, 1985, Ser. No. 814,975
priority, application Japan, Jul. 8, 1985, 60-29010
Term of patent 14 years

Boudet, Izernore, France 0150
Filed Sep. 20, 1985, Ser. No. 778,469
y, application France, Apr. 18, 1985, 85.1772
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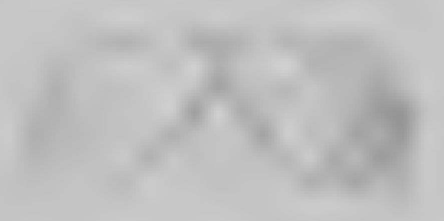

296,563
EYEGLASSES
H. Matthias, Beverly Hills, Calif., assignor to Optyl Eyewear Fashion International Corporation, Norwood, N.J.
Filed Feb. 20, 1986, Ser. No. 834,460
priority, application Fed. Rep. of Germany, Oct. 24
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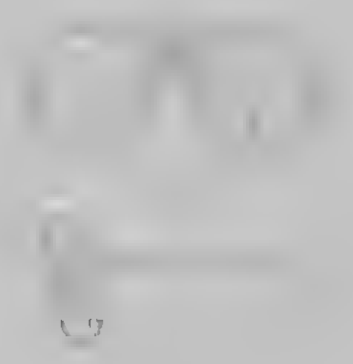
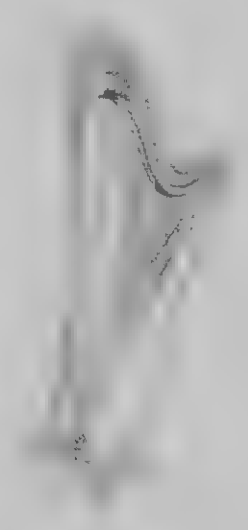
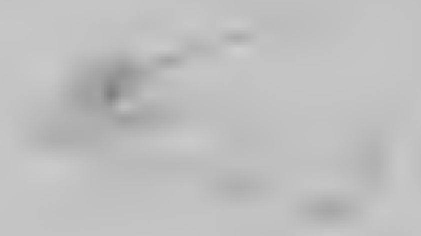
Term of patent 14 years



CRITERION HARP
Walter Kasacki, 3868 W. Grand Ave., Chicago,
Filed May 20, 1985, Ser. No. 735,678
Term of patent 14 years



296,565
LETTER STAMPING MACHINE
Robert J. Eichenberg, and La Dorna E. Eichenberg, both
Box 8209, Newport Beach, Calif. 92658-8209
Filed Jan. 30, 1986, Ser. No. 824,364



PAPER BINDING MACHINE
, Japan
Filed Apr. 16, 1986, Ser. No. 852,895
Term of patent 14 years
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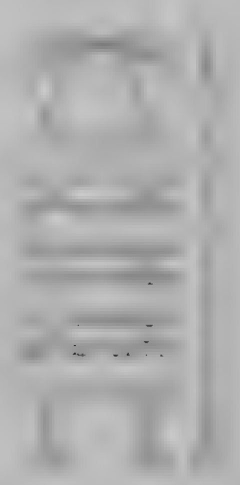
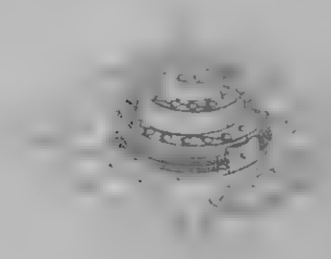
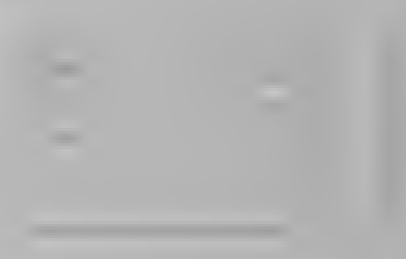
296,567
HANGING BOARD CALENDAR
Muramatsu, P.O. Box 3659, Santa Monica, Calif. 90415
Filed Feb. 13, 1984, Ser. No. 579,693
Term of patent 14 years



ART SUPPLY CADDY
hard P. Nadeau, Frankfort, N.Y., ass
prise, Inc., Utica, N.Y.
Filed Sep. 16, 1985, Ser. No. 776,598
Term of patent 14 years



SHOPPING CART PLACARD HOLDER
, 3 Grove Isle Dr., Coconut Grove, Fla. 331
Filed Sep. 3, 1985, Ser. No. 771,699
Term of patent 14 years



GAME BOARD
Mary J. Glassner, and Robert R. Armstrong,
Wesley Ter., Schiller Park, Ill. 60146
Filed Dec. 18, 1985, Ser. No. 810,162
Term of patent 14 years

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TOY SWIMMING DOLPHIN
Duncan Tong, Hong Kong, Hong Kong, assignor to Duncan Products Limited, Hong Kong, Hong Kong
Filed Oct. 21, 1985, Ser. No. 789,873
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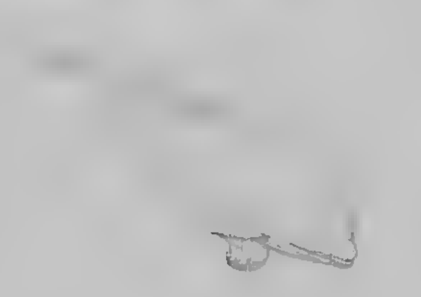
296,573
TOY SWIMMING WHALE
Duncan Tong, Hong Kong, Hong Kong, assignor to Duncan Products Limited, Hong Kong, Hong Kong
Filed Oct. 21, 1985, Ser. No. 789,872
Claims priority, application United Kingdom, Aug. 19, 1985



THREE DIMENSIONAL SIMULATED ANIMAL OR SIMILAR ARTICLE
Robyn L. Hill, Euclid; Michael A. Robertson, Lakewood; Randy J. Randleman, Cleveland, and Susan E. Trentel, Lakewood, all of Ohio, assignors to Those Characters From Cleveland, Inc., Cleveland, Ohio
Filed Jul. 16, 1987, Ser. No. 74,470
Term of patent 14 years

296,575
COMBINED MAIN BEAM AND ROLLER CARRIAGE FOR A ROWING MACHINE
Ronald A. McNeil, P.O. Box 1127, Havana, Fla. 32333
Filed Mar. 22, 1985, Ser. No. 714,796
Term of patent 14 years
U.S. Cl. D21—191

URFBOARD
n-Paul Gendron, 1181 chemin Royal, Saint d'Orleans, Province of Quebec, Canada G0A 3Z0
Filed Jun. 12, 1985, Ser. No. 743,780
Term of patent 14 years

296,577
KNIFE FOR ANIMAL DRESSING AND PREPARATION
harles D. Schandua, 159 Lone Oak Rd., New Braunfels, Tex. 78130
Filed Nov. 29, 1985, Ser. No. 804,112
Term of patent 14 years

296,578
PLUMBING FITTING HANDLE
, Sheboygan, Wis., assignor to Kohler
d Jan. 9, 1986, Ser. No. 817,355
Term of patent 14 years

296,580
WELDING CONNECTOR FOR A COND
Ian W. M. Kirkwood, Aberdeen, Scotland, assignor Engineering Services Limited, Dundee, Scotland
Filed Sep. 26, 1985, Ser. No. 780,791
Claims priority, application United Kingdom, M

296,58
SLEEVE FOR HOSE CONN
ch Hattori, Bensenville, Ill., assignor
atavia, Ill.
Filed Nov. 27, 1985, S

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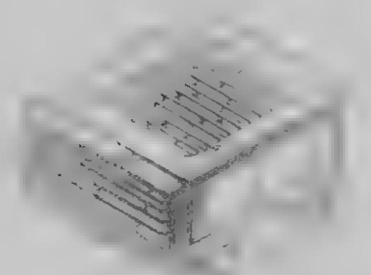
ALL HOLDER
Andreas Haug, Altensteig, and Hans-Peter Leins, Rohrdorf, both of Fed. Rep. of Germany, assignors to Hans Grohe GmbH & Co. KG, Fed. Rep. of Germany
d Aug. 19, 1985, Ser. No

LE ELECTRIC HEATER
aradas, 15 Riverview Ct., Glenville, Conn. 06830
Filed Sep. 27, 1985, Ser. No. 781,008
Term of patent 14 years



INTAKE APERTURES
m, 656 Suwanee E. Dr., Lawrenceville
l Nov. 14, 1985, Ser. No. 804,98
Term of patent 14 years

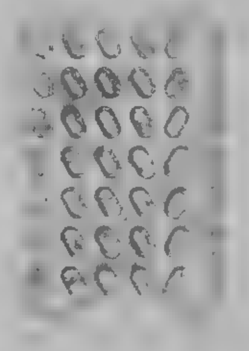
296,585
COMPUTER COOLING FAN
. Dodson, 31510 Ararat, Bonsall, Calif. 92
Filed Apr. 16, 1986, Ser. No. 852,933
Term of patent 14 years
U.S. Cl. D23—37

COMPUTER COOLING FAN
Andrew S. Pastecki, San Marino, Calif., assignor to MPH Electronics, South El Monte, Calif.
Filed Mar. 10, 1986, Ser. No. 842,426
Term of patent 14 years
D23—37

296,58
COMPUTER COOLING FAN
Douglas A. Dodson, 31510 Ararat, Bonsall, Calif. 92003
Filed Sep. 6, 1985, Ser. No. 773,20
Term of patent 14 years

LOG CARRYIN
hompson, P.O. Box 10, Lone Rock, Io
Filed Jul. 8, 1985, Ser. No. 752,827
Term of patent 14 years
3—4

296,589
MEDICATION CARRIER INSERT
H. Webster, Winnipeg, Canada, assignor to Manrex Limited, Winnipeg, Canada
Filed Jan. 18, 1985, Ser. No. 692,613
Term of patent 14 years



TRACTION SUPPORT STAND
ge W. Cottrell, 1060 SW. Skyline, Portland, Oreg. 97221
Filed Dec. 24, 1985, Ser. No. 813,122
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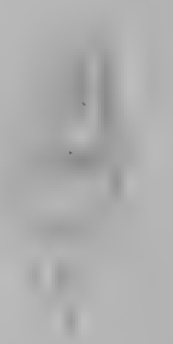
Claims priority, application Sweden, Jan. 8, 1985, 8
Term of patent 14 years



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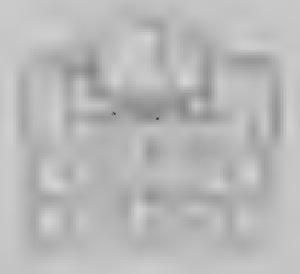

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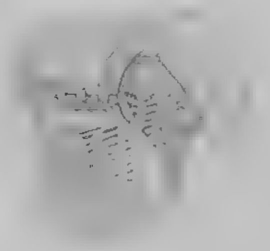

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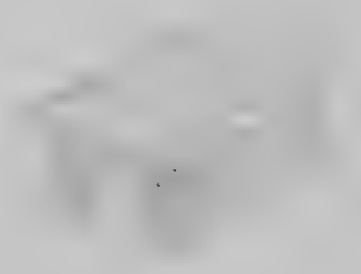

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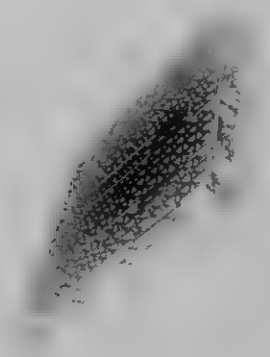

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Filed Jan. 22, 1985, Ser. No. 693,347
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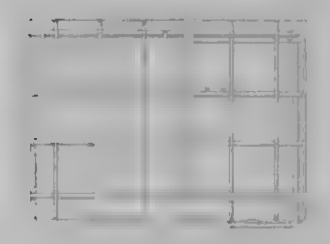

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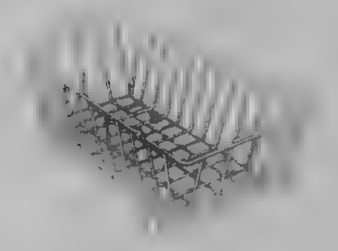

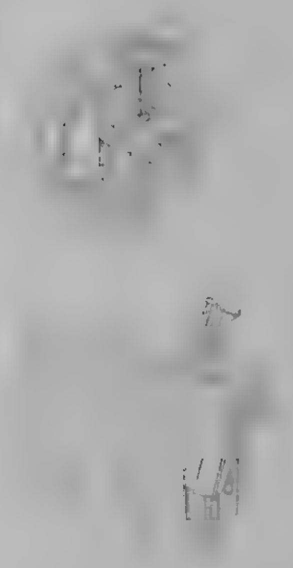

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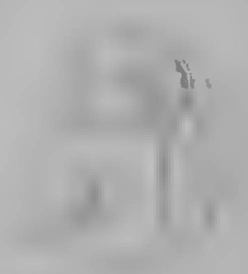

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U.S. DEPARTMENT OF COMMERCE
C. William Verity, *Secretary*
PATENT AND TRADEMARK OFFICE
Donald J. Quigg, *Commissioner*

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[illegible] desirable. A brief is in compliance with §1.192(c) as long as it includes items (1) to (7) in the order set forth (with the appendix, item (7), at the end).

Paragraph (d) provides that if a brief is filed which does not comply with all the requirements of paragraph (c), the appellant will be notified of the reasons for non-compliance and given a period of one month within which to file an amended brief. The appeal will be dismissed if the appellant does not file an amended brief within the one-month period, or files an amended brief which does not overcome all the reasons for non-compliance of which he or she was notified.

Several commenters proposed that the Board, rather than the examiner, should be the arbiter of whether a brief complies with §1.192(c). These proposals have not been adopted. The question of whether a brief complies with a rule is a matter within the jurisdiction of the examiner. Moreover, adoption of these proposals would require the application file to be sent to the Board to review the brief, then returned to the examiner for the examiner's answer. Such a procedure would not only cause unnecessary delays, but would contravene one of the purposes of §1.192(c) by increasing the workload of the Board. Under §1.192(d), as adopted, the appellant may file an amended brief to correct any deficiencies in the original. Moreover, if appellant disagrees with the examiner's holding of non-compliance, a petition under 37 CFR 1.181 may be filed.

Paragraph (d) also adds the following sentence:

> Any arguments or authorities not included in the brief may be refused consideration by the Board of Patent Appeals and Interferences.

This sentence emphasizes that all arguments and authorities which an appellant wishes the Board to consider should be included in the brief. It should be noted that arguments not presented in the brief and made for the first time at oral hearing are not normally entitled to consideration. *In re Chiddix*, 209 USPQ 78 (Comr. 1980); *Rosenblum* v. *Hiroshima*, 220 USPQ 383 (Comr. 1983). A number of commenters were concerned that this sentence of §1.192(d) would preclude the filing of a supplemental paper if a new argument or authority should become available or relevant after the brief was filed. No such result is intended. The sentence in question uses the word "may" to leave open the possibility that the Board has leeway to consider arguments or authorities not included in the brief under circumstances where the failure to include them can be justified. Examples of such circumstances would be where a pertinent decision of a court or other tribunal was not published until after the brief was filed, or where a particular argument or authority was not applicable to any of the grounds of rejection in the final rejection, but was relevant to a new point of argument raised in the examiner's answer.

C. Contents of Reply Brief

[illegible] an obligation to present argument [illegible] in their opening briefs. Considering an argument advanced for the first time in a reply brief would not only delay the proceeding, but also would entail the risk of an improvident or ill-advised opinion on the legal issues tendered. *Von Brimer* v. *Whirlpool Corp.*, 536 F.2d 838, 846, 190 USPQ 528, 534 (9th Cir. 1976).

The final sentence of §1.193(b), as amended, provides that the reply may be accompanied by, rather than include, any amendment or material appropriate to the new ground of rejection. This change in the rule makes clear that the amendment or other material must be presented in a separate paper, rather than in the reply itself.

A number of commenters proposed that the Board, not the examiner, should determine whether or not the reply brief is directed only to new points raised in the examiner's answer. In essence they feel that the examiner is not in a position to fairly judge whether a reply brief complies with the rule. These proposals have not been adopted. Section 1.193(b) requires that the appellant be notified if the reply brief is not entered because of non-compliance with the rule, and an appellant who disagrees with that ruling may seek review by way of a petition under 37 CFR 1.181. This is essentially no different than the procedure currently followed (see *Manual of Patent Examining Procedure*, §1208.01, p. 1200-9, 5th Ed., Rev. 7 (Dec. 1987)).

One commenter suggested that the examiner's answer be eliminated; another, that the examiner should have to file the examiner's answer first. These are both beyond the scope of the present proposal, and have not been adopted.

(3) Time Period for Requesting an Oral Hearing

Section 1.194(b), as amended, adds the following sentence after the first sentence:

> If the examiner's answer states a new ground of rejection and if appellant files a reply as provided by §1.193(b), then the written request must be made within three months after the date of the filing of the reply.

The present rule does not provide the appellant with an additional time period for requesting an oral hearing in the event that the examiner's answer states a new ground of rejection. If the answer states a new ground of rejection, §1.193(b) provides that appellant's reply may also include any amendment or material appropriate to the new ground of rejection. However, under §1.194(b) appellant must file the request for oral hearing within one month after the date of the answer whereas the reply thereto must be filed within two months from the date of the answer. Consequently, appellant must file a request for oral hearing before having the benefit of the examiner's views, if any, with respect to the reply.

Although the examiner does not normally issue a supplemental answer in response to a reply, see *Manual of Patent Examining Procedure, supra*, §1208.01, the amend-

[illegible] has determined that the appellant will not be unfairly prejudiced, e.g., where the reference is not basic and materially better in meeting all the claims, and the requirements for making an action final are met. This sufficiently protects the rights of the appellant, while at the same time preventing the addition of a further round of papers to the file.

(4) Procedure Following Final Rejection, Remand Under §1.196(b)

Section 1.196(b)(1), as amended, adds the following sentence as the penultimate sentence of the section:

> Should the examiner repeat the rejection the applicant may again appeal to the Board of Patent Appeals and Interferences.

Under §1.196(b), the Board may, in its decision on an *ex parte* appeal, make a new rejection of one or more appealed claims, in which case the appellant has the option of (1) submitting an appropriate amendment of the rejected claims, and/or a showing of facts, (2) requesting reconsideration, or (3) treating the decision as a final decision. If the appellant elects option (1), the case is remanded to the examiner for consideration. If the examiner does not consider that the amendment and/or showing of facts overcome the rejection, he or she will again reject the claims; if appropriate, the rejection will be made final.

An applicant in whose application such a final rejection has been made by the examiner may mistakenly believe that he or she is entitled to review by the Board of the rejection by virtue of the fact that the application was previously on appeal. The amendment corrects this belief by making clear that after such a rejection, an applicant who desires further review of the matter must file a new appeal to the Board. The language of the amendment is similar to the fourth sentence of §1.196(d).

The proposed amendment to §1.196(b)(1) began "Should the examiner make the rejection final," but as one commenter pointed out, 35 U.S.C 134 permits an appeal to the Board of claims which have been twice rejected. Since the claims referred to in §1.196(b)(1) would have been twice rejected (once by the Board and once by the examiner), the examiner's rejection could be appealed even if not made final. The beginning of the amendment has therefore been changed to "Should the examiner again reject the application."

This commenter also asserted that §1.196(b)(1) is ambiguous, in that it implies that a separate fee would be due for the subsequent appeal, "an interpretation contrary to 35 U.S.C. 134." The PTO considers that the statute requires a separate fee for such an appeal. In the §1.196(b) situation, the appellant has already filed an appeal, paid the fee, and received a decision thereon by the Board. Any rejection under §1.196(b) included in the Board's decision would be, according to the rule, on "any grounds not involved in the appeal." Thus, an appeal from the subsequent rejection by the examiner would be an entirely new appeal involving a different ground and would require a new notice of appeal and the payment of another fee.

[illegible]

Under the present practice, access can only be obtained by filing an *ex parte* petition to the Commissioner accompanied by the petition fee set forth in §1.17(i) and normally no decision is rendered on the petition until after the opposing party has had an opportunity to respond to the petition. The amendment expedites the interference proceeding by eliminating the delays inherent in the petition process. By requiring the party seeking access to file a motion under §1.635, that party will first have to confer with the opposing party in an effort to resolve the issue of access as required by §1.637(b). The examiner-in-chief will not have to decide the issue unless it cannot be resolved by the parties.

(6) Access to Applications

Section 1.14(e), as amended, deletes the word "of" from the phrase "or of any papers relating thereto" and adds a reference to §1.612(a) by adding the following sentence as the last sentence thereof:

> See §1.612(a) for access by an interference party to a pending or an abandoned application.

Section 1.14(e) as presently worded appears to limit a request by a member of the public to copies of, but not access to, any papers relating to any pending or abandoned application. Any such limitation was unintentional. The amended language will permit a member of the public to request both access to and copies of those pa- [redacted]

(7) Request for Interference with an Application or Patent

Sections 1.604(a) and 1.607(a), as amended, provide for the situation in which a patent applicant requests an interference with another application or patent, respectively, on the basis of one or more claims which are already present in his or her application. The present rules require that when an applicant seeks an interference with another application or an unexpired patent, he or she must present a claim corresponding to the proposed count. The amended rules eliminate this requirement if a claim or claims corresponding to the proposed count are already in the application, and the applicant identifies them as such.

(8) Motion to Declare Additional Interference

Section 1.637(e)(1)(vi), as amended, requires that a motion to declare an additional interference under 37 CFR 1.633(e)(1) between an additional application not involved in the interference and owned by a party and an opponent's application or patent involved in the interference either (1) designate the claims of the opponent's application or patent which define the same patentable invention defined by the proposed count, or (2), if the opponent's application does not contain any such claim, the moving party must propose a claim to be added to the opponent's application. The present §1.637(e)(2)(vi) includes requirement (1), but only infers

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alternative requirement (2). The amended section specifically includes both requirements.

(9) Filing of Reissue Application During Interference

Section 1.662(b), as amended, inserts a comma after "§1.633(h)" and adds the language "or would not be appropriate" at the end of the last sentence. The present rule contemplates that a reissue application may be filed by a patentee involved in an interference only for one of two reasons: either for the purpose of avoiding the interference, or for some other purpose relating to the interference, e.g., to add claims corresponding to a proposed new count. In the first case, judgment would be entered against the patentee, and in the second case, a motion under §1.633(h) to add the reissue application to the interference would be appropriate.

However, it has been found that a patentee involved in an interference may file a reissue application for some other reason not contemplated by the rule, and for which the entry of judgment or a motion under §1.633(h) would not be appropriate. For example, the patentee might file a reissue application for the purpose of amending claims of the patent which are directed to an invention which is patentably distinct from the issue of the interference and which is not disclosed by the opposing party. In such a situation, addition of the reissue application to the interference would be unnecessary. The amendment of §1.662(b) accommodates this third possibility by providing that, instead of filing a motion under §1.633(h) to add the reissue application to the interference, a patentee can show good cause why such a motion would not be appropriate under the particular circumstances involved.

(10) Applications Under Secrecy Order

Section 5.3(b), as amended, deletes the language "under secrecy order copies claims from an issued patent" and inserts in its place the language "is under secrecy order seeks to provoke an interference with an issued patent" to make the section's language consistent with that of §1.607(d). In addition, the reference to "§1.205(c)" is corrected to read "§1.607(d)".

Postponement of Amendment of Interference Estoppel Rule

The notice of proposed rulemaking included proposed amendments of 37 CFR 1.658(c) concerning the effect of a judgment in an interference. In response to requests by a number of commenters for further time to study the effect of the proposed amendments, the proposal will not be implemented at this time. A proposed amendment of §1.658(c) will be published later; in the meantime, interested parties are invited to submit their comments and suggestions.

Accordingly, present §1.658(c) remains in effect.

Environmental, Energy and Other Considerations

This rule change will not have a significant impact on the quality of the human environment or conservation of [illegible]

The rule change is in conformity with the requirements of the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, Executive Orders 12291 and 12612, and the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

The General Counsel of the Department of Commerce certified to the Small Business Administration that the rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, 5 U.S.C. 605(b)), because it is intended to expedite the disposition of appeals and to simplify by clarification and amplification certain of the rules governing the conduct of an interference. The expedited disposition of appeals will permit the small entity to make earlier business decisions which may be affected by a pending appeal. The effect of the clarification and amplification of the rules relating to interferences will be to reduce the costs associated with involvement in an interference.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, federal, state or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The Patent and Trademark Office has also determined that this notice has no Federalism implications affecting the relationship between the national government and the states as outlined in Executive Order 12612.

This rule does not contain a collection of information subject to the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

List of Subjects in 37 CFR Parts 1 and 5

Administrative practice and procedure, Authority delegations (government agencies), Conflict of interests, Courts, Inventions and patents, Lawyers.

Pursuant to the authority granted to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, Parts 1 and 5 of Title 37 of the Code of Federal Regulations are amended as set forth below.

Part I—RULES OF PRACTICE IN PATENT CASES

1. The authority citation for 37 CFR Part 1 continues to read as follows:

Authority: 35 U.S.C. 6, unless otherwise noted.

2. Section 1.14 is amended by revising paragraph (c) to read as follows: §1.14 Patent applications preserved in secrecy.

* * * * *

(c) Any request by a member of the public seeking access to, or copies of, any pending or abandoned application preserved in secrecy pursuant to paragraphs (a) and (b) of this section, or any papers relating thereto, must (1) be in the form of a petition and be accompanied by the petition fee set forth in §1.17(i) or (2) include written authority granting access to the member of the public in that particular application from the applicant or the applicant's assignee or attorney or agent of record. See §1.612(a) for access by an interference party to a pending or abandoned application.

3. Section 1.131 is amended by revising paragraphs (a) and (b) to read as follows:

> §1.131 Affidavit or declaration of prior invention to overcome cited patent or publication.

(a) When any claim of an application or a patent under reexamination is rejected on reference to a domestic patent which substantially shows or describes but does not claim the same patentable invention, as defined in §1.601(n), as the rejected invention, or on reference to a foreign patent or to a printed publication, and the inventor of the subject matter of the rejected claim, the owner of the patent under reexamination, or the person qualified under §§1.42, 1.43 or 1.47, shall make oath or declaration as to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, then the patent or publication cited shall not bar the grant of a patent to the inventor or the confirmation of the patentability of the claims of the patent, unless the date of such patent or printed publication is more than one year prior to the date on which the inventor's or patent owner's application was filed in this country.

(b) The showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference, or conception of the invention prior to the effective date of the reference coupled with due diligence from prior to said date to a subsequent reduction to practice or to the filing of the application. Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or declaration or their absence satisfactorily explained.

4. Section 1.192 is amended by revising paragraph (a) and adding new paragraphs (c) and (d) to read as follows:

§1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the notice of appeal under §1.191 in an application, reissue application, or patent under reexamination, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate. The brief must be accompanied by the requisite fee set forth in §1.17(f) and must set forth the authorities and arguments on which the appellant will rely to maintain the appeal.

* * * * *

(c) The brief shall contain the following items under appropriate headings and in the order here indicated:

(1) *Status of Claims*. A statement of the status of all the claims, pending or cancelled, and identifying the claims appealed.

(2) *Status of Amendments*. A statement of the status of any amendment filed subsequent to final rejection.

(3) *Summary of Invention*. A concise explanation of the invention defined in the claims involved in the appeal, which shall refer to the specification by page and line number, and to the drawing if any, by reference characters.

(4) *Issues*. A concise statement of the issues presented for review.

(5) *Grouping of Claims*. For each ground of rejection which appellant contests and which applies to more than one claim, it will be presumed that the rejected claims stand or fall together unless a statement is included that the rejected claims do not stand or fall together, and in the appropriate part or parts of the argument under subparagraph (c)(6) of this section appellant presents reasons as to why appellant considers the rejected claims to be separately patentable.

(6) *Argument*. The contentions of the appellant with respect to each of the issues presented for review in subparagraph (c)(4) of this section, and the basis therefor, with citations of the authorities, statutes, and parts of the record relied on. Each issue should be treated under a separate heading.

> (i) For each rejection under 35 U.S.C. 112, first paragraph, the argument shall specify the errors in the rejection and how the first paragraph of 35 U.S.C. 112 is complied with, including, as appropriate, how the specification and drawings, if any, (A) describe the subject matter defined by each of the rejected claims, (B) enable any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and (C) set forth the best mode contemplated by the inventor of carrying out his or her invention.
>
> (ii) For each rejection under 35 U.S.C. 112, second paragraph, the argument shall specify the errors in the rejection and how the claims particularly point out and distinctly claim the subject matter which applicant regards as the invention.
>
> (iii) For each rejection under 35 U.S.C. 102, the argument shall specify the errors in the rejection and why the rejected claims are patentable under 35 U.S.C. 102, including any specific limitations in the rejected claims which are not described in the prior art relied upon in the rejection.
>
> (iv) For each rejection under 35 U.S.C. 103, the argument shall specify the errors in the rejection and, if appropriate, the specific limitations in the rejected claims which are not described in the prior art relied on in the rejection, and shall explain how such limitations render the claimed subject matter unobvious over the prior art. If the rejection is based upon a combination of references, the argument shall explain why the references, taken as a whole, do not suggest the claimed subject matter, and shall include, as may be appropriate, an explanation of why features disclosed in one reference may not properly be combined with features disclosed in another reference. A general argument that all the limitations are not described in a single reference does not satisfy the requirements of this paragraph.
>
> (v) For any rejection other than those referred to in paragraphs (i) to (iv) of this section, the argument shall specify the errors in the rejection and the specific limitations in the rejected claims, if appropriate, or other reasons, which cause the rejection to be in error.

(7) *Appendix*. An appendix containing a copy of the claims involved in the appeal.

(d) If a brief is filed which does not comply with all the requirements of paragraph (c) of this section, the appellant will be notified of the reasons for non-compliance and provided with a period of one month within which to file an amended brief. If the appellant does not file an amended brief during the one-month period, or files an amended brief which does not overcome all the reasons for non-compliance stated in the notification, the appeal will be dismissed. Any arguments or authorities not included in the brief may be refused consideration by the Board of Patent Appeals and Interferences.

5. Section 1.193 is amended by revising paragraph (b) to read as follows:

§1.193 Examiner's answer.

* * * * *

(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within one month from the date of such answer. The new points of argument shall be specifically identified in the reply brief. If the examiner determines that the reply brief is not directed only to new points of argument raised in the examiner's answer, the examiner may refuse entry of the reply brief and will so notify the appellant. If the examiner's answer states a new ground of rejection appellant may file a reply thereto within two months from the date of such answer; such reply may be accompanied by any amendment or material appropriate to the new ground.

6. Section 1.194 is amended by revising paragraph (b) to read as follows:

§1.194 Oral hearing.

* * * * *

(b) If appellant desires an oral hearing, appellant must file a written request for such hearing accompanied by the fee set forth in §1.17(g) within one month after the date of the examiner's answer. If the examiner's answer states a new ground of rejection and if appellant files a reply as provided for by §1.193(b), then the written request must be made within three months after the date of the filing of the reply. If appellant requests an oral hearing and submits therewith the fee set forth in §1.17(g), an oral argument may be presented by, or on

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behalf of, the primary examiner if considered desirable by either the primary examiner or the Board.

• • • • •

7. Section 1.196(b)(l) is revised to read as follows:

§1.196 Decision by the Board of Patent Appeals and Interferences.

• • • • •

(b) • • •
(l) The appellant may submit an appropriate amendment of the claims so rejected or a showing of facts, or both, and have the matter reconsidered by the examiner in which event the application will be remanded to the examiner and the decision of the Board of Patent Appeals and Interferences shall not be considered final for the purpose of judicial review. The statement shall be binding upon the examiner unless an amendment or showing of facts not previously of record be made which, in the opinion of the examiner, overcomes the new ground for rejection stated in the decision. Should the examiner again reject the application the applicant may again appeal to the Board of Patent Appeals and Interferences. When appropriate, upon conclusion of proceedings on remand before the examiner, the Board of Patent Appeals and Interferences may enter an order otherwise making its decision final.

• • •

• • • • •

8. Section 1.604(a) is revised to read as follows: §1.604 Request for interference between applications by an applicant.

(a) An applicant may seek to have an interference declared with an application of another by (1) suggesting a proposed count and presenting at least one claim corresponding to the proposed count or identifying at least one claim in his or her application that corresponds to the proposed count, (2) identifying the other application and, if known, a claim in the other application which corresponds to the proposed count, and (3) explaining why an interference should be declared.

• • • • •

9. Section 1.607(a) is revised to read as follows:

§1.607 Request by applicant for interference with patent.

(a) An applicant may seek to have an interference declared between an application and an unexpired patent by (1) identifying the patent, (2) presenting a proposed count, (3) identifying at least one claim in the patent corresponding to the proposed count, (4) presenting at least one claim corresponding to the proposed count or identifying at least one claim already pending in his or her application that corresponds to the proposed count, and, if any claim of the patent or application identified as corresponding to the proposed count does not correspond exactly to the proposed count, explaining why each such claim corresponds to the proposed count, and (5) applying the terms of any application claim (i) identified as corresponding to the count and (ii) not previously in the application to the disclosure of the application.

• • • • •

10. Section 1.612(a) is revised to read as follows:

§1.612 Access to applications.

(a) After an interference is declared, each party shall have access to and may obtain copies of the files of any application set out in the notice declaring the interference, except for affidavits filed under §1.131 and any evidence and explanation under §1.608 filed separate from an amendment. A party seeking access to any abandoned or pending application referred to in the opposing party's involved application or access to any pending application referred to in the opposing party's patent must file a motion under §1.635.

• • • • •

11. Paragraph (vi) of §1.637(e)(l) is revised to read as follows:

§1.637 Content of motions.

• • • • •

(e) • • •

(l) • • •

(vi) Identify all claims in the opponent's application or patent which should be designated to correspond to each proposed count; if the opponent's application does not contain any such claim, the motion shall propose a claim to be added to the opponent's application.

• • • • •

12. Paragraph (b) of §1.662 is revised to read as follows:

§1.662 Request for entry of adverse judgment; reissue filed by patentee.

• • • • •

(b) If a patentee involved in an interference files an application for reissue during the interference and omits all claims of the patent corresponding to the counts of the interference for the purpose of avoiding the interference, judgment may be entered against the patentee. A patentee who files an application for reissue other than for the purpose of avoiding the interference shall timely file a preliminary motion under §1.633(h), or show good cause why the motion could not have been timely filed or would not be appropriate.

• • • • •

Part 5—SECRECY OF CERTAIN INVENTIONS AND LICENSES TO EXPORT AND FILE APPLICATIONS IN FOREIGN COUNTRIES

13. The authority citation for 37 CFR Part 5 is revised to read as follows:

Authority: 35 U.S.C. 6, 41, 181-188, the Export Administration Act of 1979, as amended, 50 U.S.C.App. 2401 *et seq.*, the Arms Export Control Act, as amended, 22 U.S.C. 2751 et seq., the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 *et seq.*, and the Nuclear Non-Proliferation Act of 1978, 22 U.S.C. 3201 *et seq.*, and the delegations in the regulations under these acts to the Commissioner (15 CFR 370.10(j), 22 CFR 125.04, and 10 CFR 810.7).

14. Paragraph (b) of §5.3 is revised to read as follows:

§5.3 Prosecution of application under secrecy orders; withholding patent.

• • • • •

(b) An interference will not be declared involving national applications under secrecy order. However, if an applicant whose application is under secrecy order seeks to provoke an interference with an issued patent, a notice of that fact will be placed in the file wrapper of the patent. (See §1.607(d)).

• • • • •

APPENDIX A

Requirements for Examiner's Answer

Chapter 1200 of the Manual of Patent Examining Procedure will be amended to require that the examiner's answer include, in the order indicated, the following items:

(1) *Status of claims.* A statement of whether the examiner disagrees with the statement of the status of claims contained in the brief and a correct statement of the status of all the claims pending or cancelled, if necessary.

(2) *Status of Amendments.* A statement of whether the examiner disagrees with the statement of the status of amendments contained in the brief, and an explanation of any disagreement.

(3) *Summary of invention.* A statement of whether the examiner disagrees with the summary of invention contained in the brief, an explanation of why the examiner disagrees, and a correct summary of invention, if necessary.

(4) *Issues.* A statement of whether the examiner disagrees with the statement of the issues in the brief and an explanation of why the examiner disagrees, including:

    (i) Identification of any issues which are petitionable rather than appealable, and
    (ii) Identification of any issues or grounds of rejection on appeal which the examiner no longer considers applicable.

(5) *Grouping of Claims.* A statement of whether the examiner disagrees with any statement in the brief that certain claims do not stand or fall together, and, if the examiner disagrees, an explanation as to why those claims are not separately patentable.

(6) *Claims appealed.* A statement of whether the copy of the appealed claims contained in the appendix to the brief is correct and if not, a correct copy of any incorrect claim.

(7) *References of record.* A listing of the references of record relied on, and in the case of non-patent references, the relevant page or pages.

(8) *New references.* A statement of whether or not any new reference is being applied and a listing of each such reference being cited for a new ground of rejection in the examiner's answer, and in the case of non-patent references, the relevant page or pages.

(9) *Grounds of rejection.* For each ground of rejection applicable to the appealed claims, an explanation of the ground of rejection, or reference to a final rejection or other single prior action for a clear exposition of the rejection.

    (i) For each rejection under 35 U.S.C. 112, first paragraph, the examiner's answer, or the single prior action, shall explain how the first paragraph of 35 U.S.C. 112 is not complied with, including, as appropriate, how the specification and drawings, if any, (a) do not describe the subject matter defined by each of the rejected claims, (b) would not enable any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and (c) do not set forth the best mode contemplated by the appellant of carrying out his or her invention.
    (ii) For each rejection under 35 U.S.C. 112, second paragraph, the examiner's answer, or single prior action, shall explain how the claims do not particularly point out and distinctly claim the subject matter which applicant regards as the invention.
    (iii) For each rejection under 35 U.S.C. 102, the examiner's answer, or single prior action, shall explain why the rejected claims are anticipated or not patentable under 35 U.S.C. 102, pointing out where all of the specific limitations recited in the rejected claims are found in the prior art relied upon in the rejection.
    (iv) For each rejection under 35 U.S.C. 103, the examiner's answer, or single prior action, shall state the ground of rejection and point out where each of the specific limitations recited in the rejected claims is found in the prior art relied on in the rejection, shall identify any difference between the rejected claims and the prior art relied on and shall explain how the claimed subject matter is rendered unpatentable over the prior art. If the rejection is based upon a combination of references, the examiner's answer, or single prior action, shall explain the rationale for making the combination.
    (v) For each rejection under 35 U.S.C. 102 or 103 where there may be questions as to how limitations in the claims correspond to features in the prior art, the examiner, in addition to the requirements of (9)(iii) and (iv) above, should compare at least one of the rejected claims feature by feature with the prior art relied on in the rejection. The comparison shall align the language of the claim side by side with a reference to the specific page, line number, drawing reference number and quotation from the prior art, as appropriate.
    (vi) For each rejection, other than those referred to in paragraphs (i) to (v) of this section, the examiner's answer, or single prior action, shall specifically explain the basis for the particular rejection.

(10) *New ground of rejection.* A statement of whether or not any new ground of rejection is being made in the examiner's answer and a complete statement and explanation of any such new ground. The requirements of paragraph (9) shall be complied with for any new ground of rejection.

(11) *Response to argument.* A statement of whether the examiner disagrees with each of the contentions of appellant in the brief with respect to the issues presented and an explanation of the reasons for disagreement with any such contention. If any ground of rejection is not argued and responded to by appellant, the response shall point out each claim affected.

(12) *Period of response to new ground of rejection.* A statement setting the period for appellant to file a reply to any new ground of rejection, if necessary.

DONALD J. QUIGG,
Assistant Secretary and
Commissioner of Patents
and trademarks.

May 3, 1988

[Billing Code 3510-16]

Removal From Register

Pursuant to the provisions of 37 CFR §10.11(b), a letter was directed on Nov. 20, 1987 to the last post office address furnished to the Office of Enrollment and Discipline by each of the persons whose name and address appear on the following list. With respect to some of the letters, no reply was received within the period of forty-five (45) days therein set. Other letters were returned by the Post Office with notations to the effect that the addressee was deceased, unknown, or had moved and left no forwarding address.

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Accordingly, the names of the following persons have been removed from the Register of Patent Attorneys and Agents.

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Johnston, Ralph A., Sperry Corp., Marcus & Lakeville Rds., Great Neck, N.Y. 11020
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CAMERON WEIFFENBACH,
June 8, 1988 *Director, Office of Enrollment and Discipline.*

VOL 1092 ISS 2 JL 12 1988 UMI

PATENT NOTICES

Certificates of Correction for the Week of July. 12, 1988

PP. 6,077
D. 292,929
D. 293,958
D. 294,713
4,217,794
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The following libraries, designated as Patent Depository Libraries (PDLs), receive current issues of U.S. Patents and maintain collections of earlier-issued patents. The scope of these collections varies from library to library, ranging from patents of only recent years to all or most of the patents issued since 1790.

These patent collections, which are organized in patent number sequence, are available for use by the public free of charge. Each of the PDLs, in addition, offers supplemental reference publications of the U.S. Patent Classification System, including the *Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions,* and provides technical staff assistance in their use to aid the public, in gaining effective access to information contained in patents. CASSIS (Classification And Search Support Information System); which provides direct, on-line access to Patent and Trademark Office data, is available at all PDLs. Facilities for making paper copies of patents from either microfilm or paper collections are generally provided for a fee.

Since there are variations in the scope of patent collections among the PDLs and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours in order to avert possible inconvenience.

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	Pittsburgh, Carnegie Library of	(412) 622-3138
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	Milwaukee Public Library	(414) 278-3247

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner
JAMES E. DENNY, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF June 4, 1988

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 110—D. E. TALBERT, Director	2-10-87
ORGANIC CHEMISTRY GROUP 120—S. N. ZAHARNA, Director	9-3-85
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 130—R. F. WHITE, Director	4-15-87
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 150—J. O. THOMAS, Director	12-9-86
BIOTECHNOLOGY, GROUP 180—S. N. ZAHARNA, Acting Director	10-24-85
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—G. GOLDBERG, Director	5-29-86
SPECIAL LAWS ADMINISTRATION, GROUP 220—K. L. CAGE, Director	10-14-85
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 230—E. LEVY, Director	2-6-86
PACKAGES, CLEANING, TEXTILES, AND GEOMETRICAL INSTRUMENTS, GROUP 240—TRYGVE M BLIX, Director	12-2-86
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 250—EDWARD E. KUBASIEWICZ, Director	2-27-87
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 260—S. G. KUNIN, Director	10-3-86
DESIGN, GROUP 290—K. L. CAGE, Director	4-17-85
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	3-13-87
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 320—VACANT, Director	10-04-85
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 330—VACANT, Director	4-9-86
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 340—D. J. STOCKING, Director	2-20-87
GENERAL CONSTRUCTIONS, PETROLEUM AND MINING ENGINEERING, GROUP 350—A. L. SMITH, Director	7-1-87

Expiration of patents: The patents within the range of numbers indicated below expire during June 1988, except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 3,581,312 to 3,590,387, inclusive
Plant Patents	None

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REEXAMINATIONS

JULY 12, 1988

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,278,635 (892nd)
METHOD FOR DEOXYGENATION OF WATER

Herman Kerst, Des Plaines, Ill., assignor to Dearborn Chemical Co.

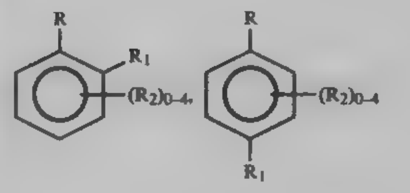
Reexamination Request No. 90/000,895, Oct. 31, 1985.
Reexamination Certificate for Patent No. 4,278,635, issued Jul. 14, 1981, Ser. No. 107,486, Dec. 26, 1979.
Continuation-in-part of Ser. No. 84,520, Oct. 12, 1979, abandoned.
Int. Cl.⁴ C23F *11/06, 11/12, 11/14, 11/16*
U.S. Cl. 422—14

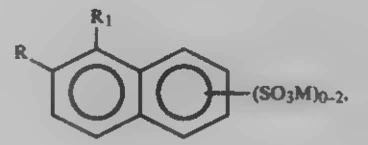
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

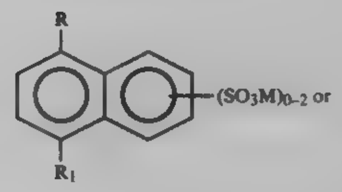
Claim 2 are cancelled.

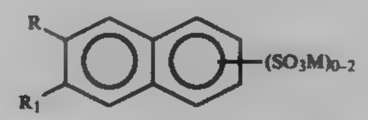
In Interference No. 101,126 final judgement adverse to the patent owner was rendered April 15, 1987, as to claims 1,3,4 and 5.

[1. A method for control of corrosion of metal surfaces in a boiler system caused by dissolved oxygen in the water, which comprises adding to the said system an effective amount, from 0.1 to 20 parts by weight per part of the oxygen in the water of an oxygen scavenger selected from the group consisting of









in which R and R_1 are independently selected from the group consisting of —OH or —NH_2; R_2 (when present) is lower alkyl containing 1-8 carbons; M is H, Na, or K; and combinations thereof; said group member being the sole oxygen scavenger present.]

B1 4,285,349 (893rd)
USE OF CERTAIN BRIDGED KETONES IN AUGMENTING OR ENHANCING THE ORGANOLEPTIC PROPERTIES OF SMOKING TOBACCO

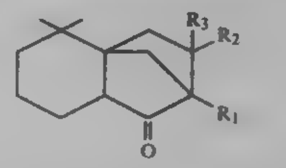
Mark A. Sprecker, Sea Bright; James M. Sanders, Eatontown; William L. Schreiber, Jackson; Hugh Watkins, Lincroft; Joaquin F. Vinals, Red Bank, all of N.J.; Edward J. Shuster, Brooklyn, N.Y.; Thomas J. O'Rourke, Red Bank, N.J.; Myrna L. Hagedorn, Highland Park, N.J., and Philip Klemarczyk, Old Bridge, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Reexamination Request No. 90/000,741, Mar. 15, 1985.
Reexamination Certificate for Patent No. 4,285,349, issued Aug. 25, 1981, Ser. No. 200,045, Oct. 23, 1980.
Division of Ser. No. 95,149, Nov. 16, 1979, Pat. No. 4,250,338.
Int. Cl.⁴ A24B *3/12, 15/30*
U.S. Cl. 131—276

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1–3 are determined to be patentable as amended.

1. A process for augmenting or enhancing the aroma or taste of a smoking tobacco comprising the step of adding to a smoking tobacco an aroma or taste augmenting or enhancing quantity of at least one tricyclic ketone having the structure:



in recovered form wherein R_1, R_2 and R_3 are the same or different and each represents hydrogen or C_1–C_3 lower alkyl.

B1 4,369,850 (894th)
HIGH PRESSURE FLUID JET CUTTING AND DRILLING APPARATUS

Clark R. Barker, Rolla, Mo., assignor to The Curators of the University of Missouri, Columbia, Mo.

Reexamination Request No. 90/001,233, May 1, 1987.
Reexamination Certificate for Patent No. 4,369,850, issued Jan. 25, 1983, Ser. No. 173,264, Jul. 28, 1980.
Int Cl.⁴ E21B *10/60*
U.S. Cl. 175—393

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

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Claims 1-9 are cancelled.

New claims 10-16 are added and determined to be patentable.

10. A high pressure fluid jet drilling and cutting system comprising:

a non-rotating fluid supply conduit in communication with a source of high pressure fluid in excess of 10,000 p.s.i.,

a high pressure fluid jet nozzle having a converging flowpath therethrough terminating in a restricted orifice of substantially smaller cross-section than the inside diameter of said supply conduit,

an elongated cylindrical rotatable case having a longitudinal axis,

a main frame,

means mounting said case on said main frame for rotation of said case about said longitudinal axis thereof,

said fluid jet nozzle flowpath having a longitudinal axis offset with respect to said longitudinal axis of said case,

bearing means interposed between said fluid jet nozzle and said case and permitting relative rotational movement therebetween, and

a flexible conduit having upstream and downstream ends and fixed at said upstream end to said non-rotating supply conduit in direct communication therewith and at said downstream end to said jet nozzle.

B1 4,617,931 (895th)
ULTRASONIC PULSE APPARATUS FOR DESTROYING CALCULUS

Jacques Dory, [9], 91, rue des Molveaux, 77450 Coupvray Esb lay, France

Reexamination Request No. 90/001,184, Mar. 2, 1987.

Reexamination Certificate for Patent No. 4,617,931, issued Oct. 21, 1986, Ser. No. 674,889, Nov. 26, 1984.

Claims priority, application France, Dec. 14, 1983, 83 20041

Int. Cl.⁴ A61B *17/22, 17/00*

U.S. Cl. 128—328

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 2 is cancelled

Claims 1, 3, 5 and 6 are determined to be patentable as amended.

Claims 4 and 7, dependent on an amended claim, are determined to be patentable.

1. A lithotrite for [contact free] *focused* pulsed wave disintegration of calculi, said lithotrite comprising:

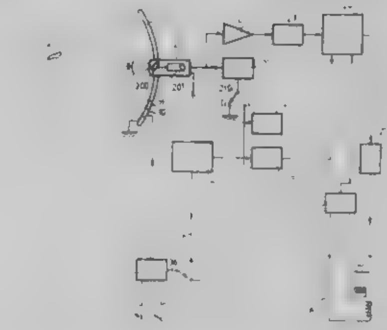
(i) high power ultrasonic pulse generator means;

(ii) *high power* piezoelectric transducer means *responsive to said generator,* having a spherical transmissive surface portion[,] in contact with a water-containing enclosure-[and adapted to focus the] , *for generating a* disintegrating [waves] *pulsed wave beam focused* at a focal spot substantially located [at the center] *along the axis* of [the] said [spherical] surface, said [center] *spot* being located out of said water containing enclosure;

(iii) means connecting [the] said pulse generator means to said piezoelectric transducer means;

(iv) image forming means for displaying [an image] *real time serial two dimensional images* of [the said] *a* calculus and a *visual* representation of the position of [the] said focal spot, *said image forming means comprising auxiliary pulse generator means; echographic beam auxiliary transmitter-receiver means and scanning means effecting successive sweeps of said echographic beam to form and display serial images of the calculus;* and

(v) means [for] displacing [the] said *high power* piezoelectric transducer means *and said auxiliary transmitter-receiver means* to bring [the] said [image] *images* and [the] said representation into coincidence.



REISSUES

JULY 12, 1988

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

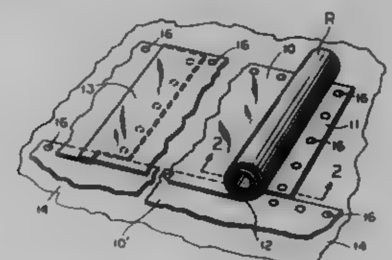
Re. 32,710
SINGLE-PLY SEALED MEMBRANE ROOFING SYSTEM

Richard N. Seaman, Millersburg, Ohio, assignor to Seaman Corporation, Wooster, Ohio

Original No. 4,546,589, dated Oct. 15, 1985, Ser. No. 255,943, Apr. 20, 1981. Application for reissue Jul. 3, 1986, Ser. No. 881,771

Int. Cl.⁴ E04D *19/08, 5/06, 5/14*

U.S. Cl. 52—518 14 Claims



1. The method of laying a single-ply sealed fiber-reinforced membrane covering over a roof deck comprising, providing rolls of membrane strips having transverse flaps of membrane substantially coextensive of width to said strips, one transverse edge portion of each flap being secured to the undersurface of said strips at longitudinal intervals, unrolling the strips successively in parallel side-by-side positions on the deck with their marginal side edge portions contiguous, mechanically fastening successive flaps of each strip at transverse intervals to the deck, mechanically fastening at least one marginal edge portion of each strip at longitudinal intervals to the deck, and bonding the marginal side edge portions of the strips together, *the successive flaps on laterally contiguous strips being staggered with respect to each other.*

Re. 32,711
ARTERIAL BLOOD FILTER WITH IMPROVED GAS VENTING

Duane D. Dickens, San Clemente, and Francis M. Servas, San Juan Capistrano, both of Calif., assignors to Shiley, Inc., Irvine, Calif.

Original No. 4,411,783, dated Oct. 25, 1983, Ser. No. 333,832, Dec. 23, 1981. Application for reissue Oct. 25, 1985, Ser. No. [illegible]

Int. Cl.⁴ B01D *19/00, 27/06, 35/02*

U.S. Cl. 210—304 22 Claims

15. A liquid filter suitable for use in an extracorporeal blood flow circuit comprising:

a hollow tubular housing having a side wall, a top wall having a highest point at the center thereof and a bottom wall;

a gas vent in said top wall at said highest point;

an annular filter element concentrically disposed within said housing and displaced from said side wall,

means to support said filter element within said housing while permitting liquid flow in a substantially radial direction through said filter element,

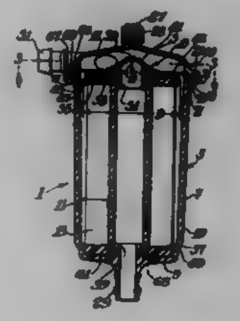
a filter element cap covering the upper end of said filter element and displaced from said top wall,

a substantially horizontal liquid inlet in said side wall adjacent said top wall, and

a filtrate outlet in said bottom wall of said housing in communication with the inner space within said annular filter element,

with the upper surface of said filter element cap being symmetrical about the longitudinal axis of said housing, having a highest point at its center, and being without any points of localized minimum height, and with said inlet being adapted to direct the incoming flow of liquid in a non-perpendicular manner against the side wall of said housing,

whereby a swirling flow of liquid is established outside said filter element and above said filter element cap.



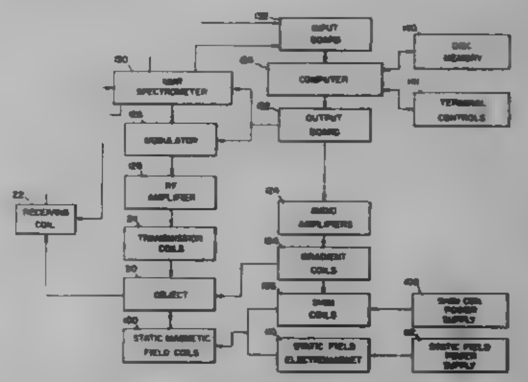
Re. 32,712
MOVING GRADIENT ZEUGMATOGRAPHY

Richard S. Likes, Kirkwood, Mo., assignor to General Electric Company, Milwaukee, Wis.

Original No. 4,307,343, dated Dec. 22, 1981, Ser. No. 67,697, Aug. 20, 1979. Continuation of Ser. No. 814,170, Dec. 23, 1985, abandoned. Application for reissue Mar. 27, 1987, Ser. No. 31,203

Int. Cl.⁴ G01R *33/20*

U.S. Cl. 324—307 82 Claims



1. A nuclear magnetic resonance apparatus for determining spin density distribution in a thin planar slab of an object under examination containing nuclear spins, said body being oriented with respect to orthogonal x and y coordinate directions defined therein and also to a z coordinate direction orthogonal to said slab and to said x and y coordinates within said slab, said apparatus comprising:

excitation means for selectively exciting said nuclear spins in said slab, said excitation means including means for applying to said object for a predetermined time period an excitation magnetic field having a gradient in the z-axis direction, said gradient being defined by a function G(t) not having a DC component, said excitation means also including means for applying a pulse of RF energy to said

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object during the time that said excitation magnetic field is applied, said pulse having an envelope defined by a function $h_1(t)=h_1\gamma G(t)\ (K/K_0)(T_0/K_0)$ wherein h_1 is a constant, T_0 is a point in time when G(t) is approximately zero, and f is a window function, so that said excited nuclear spins undergo a radiative free induction decay following termination of said excitation and so that nuclear spins in other regions of said object are substantially unexcited;

means for applying to said object a spatial differentiation magnetic field H(x,y,t), during at least a portion of the free induction decay of said excited nuclear spins, said magnetic field having the form $H_0+G_1(t)x+G_2(t)y$;

means for receiving radiated electromagnetic energy produced by said free induction decay and converting said energy to a time-varying electric signal representative of the magnitude of said energy; and

means for operating on said electrical signal to generate therefrom signals representative of the spin density distribution in said slab

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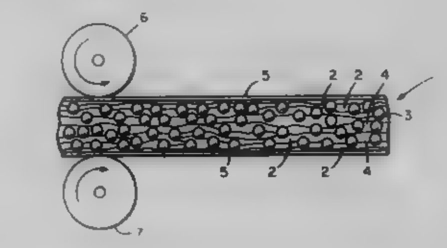
Re. 32,713

CAPSULE IMPREGNATED FABRIC

Yen-Kong Woo, 1545 Geary Blvd., San Francisco, Calif. 94115
Original No. 4,514,461, dated Apr. 30, 1985, Ser. No. 291,443, Aug. 10, 1981. Continuation-in-part of Ser. No. 130,728, Mar. 17, 1980, abandoned. Application for reissue Mar. 3, 1986, Ser. No. 835,628
Int. Cl.⁴ B32B *5/16*
U.S. Cl. 428—240 **18 Claims**



1. A fabric having an impregnation of [micro-sized] *micron-sized* capsules *therein;*

said capsules being formed by a fragrance emitting core encapsulated in a [micro-sized] *micron-sized* container of sufficient strength to resist breakage under normal handling of the fabric but sufficiently fragile to rupture under suitably exerted [hand] pressure to release said fragrance;

said impregnation having the characteristic of being sprayed with said capsules in company with a liquid binder by a forceful spray to insure complete and uniform penetration of said fabric by said capsules; *and*

said fabric having the characteristic of having passed lightly between heated pressure rollers to insure absence of any capsules on its surface thus providing a *substantially* smooth surface on said fabric.

PLANT PATENTS

GRANTED JULY 12, 1988

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

6,217

YEW NAMED GWEN

Lloyd W. Franz, Rte. 3, Napoleon, Ohio 43545
Filed Oct. 7, 1985, Ser. No. 785,240
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—50 **1 Claim**

1. A new and distinct variety of yew substantially as herein shown and described and particularly distinguished by its richer color than its companion plants growing in the same environment, and by its very slow, naturally global growth habit.

6,218

GERANIUM PLANT "BEN FRANKLIN"

Richard Craig, State College, Pa., assignor to Research Corporation, New York, N.Y.
Filed Jul. 3, 1986, Ser. No. 882,068
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new distinct cultivar of geranium substantially as illustrated and described, characterized as being particularly well adapted to both commercial greenhouse production and garden performance, and possessing unique flavonol and anthocyanin pgofiles and a unique flower color when compared to geranium cultivars "Wilhelm Langguth" and "Snowmass".

6,219

GERANIUM PLANT "PARIS"

Richard Craig, State College, Pa., assignor to Research Corporation, New York, N.Y.
Filed Jul. 3, 1986, Ser. No. 882,070
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new distinct cultivar of geranium, substantially as illustrated and described, characterized as being particularly well adapted to both commercial greenhouse production and garden performance, and possessing unique flavonol and anthocyanin profiles, more fully double florets and distinct flower color when compared to geranium cultivar "Honseler's Glorie Lila".

6,220

GERANIUM PLANT "CASSANDRA"

Richard Craig, State College, Pa., assignor to Research Corporation, N.Y.
Filed Jul. 3, 1986, Ser. No. 882,119
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new distinct cultivar of geranium, substantially as illustrated and described, characterized as being particularly well adapted to both commercial greenhouse production and garden performance, and having more fully double florets, lighter flower color and more compact plant habit when compared to the geranium cultivar "Veronica".

6,221

CHRYSANTHEMUM PLANT NAMED BRONZE PARASOL

Peter S. Hesse, Bradenton, Fla., assignor to Ball PanAm Plant Company, Parrish, Fla.
Filed Jun. 12, 1986, Ser. No. 873,806
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum plant named Bronze Parasol, as described and illustrated, and particularly characterized by the combined features of flat capitulum form and daisy capitulum type, large bronze ray florets which vary in shape from flat to spoon to quilled, with the bronze color fading evenly; eight week response period, 100–140 mm diameter across the face of the capitulum, relatively large leaves, and relatively tall plant height.

6,222

CHRYSANTHEMUM PLANT NAMED DAPPER

Leonard H. Shoesmith, deceased, late of Westfield, England by May Victoria Shoesmith, executrix, assignor to Ball PanAm Plant Company, Parrish, Fla.
Filed Jul. 31, 1986, Ser. No. 891,315
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum named Dapper, as described and illustrated, and particularly characterized as to uniqueness by its flat capitulum form and single capitulum type; ray florets which are clear white in color and frequently are tube-shaped at the base, flaring widely for remainder of floret; eight week flowering response, and by its ability to be grown in nine cm pots year around in most areas.

6,223

CHRYSANTHEMUM PLANT NAMED YELLOW DYNAMO

Peter S. Hesse, Bradenton, Fla., assignor to Ball PanAm Plant Company, Parrish, Fla.
Filed Aug. 1, 1986, Ser. No. 892,009
Int. Cl.⁴ A01H *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum named Yellow Dynamo, as described and illustrated, and particularly characterized by its strong stems with long peduncles that carry bright, deep yellow flowers; nine week response; excellent production per stem; good shipping and keeping qualities, and its adaptability to year around programs.

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PATENTS

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ERRATA

For CLASS	See PATENT NO.
437-002	4,756,074
301-015	4,756,083
342-225	4,756,094
431-125	4,756,117
264-162	4,756,796
430-393	4,756,918
430-497	4,756,966
434-039	4,757,027
512-023	4,757,051
526-286	4,757,124
526-286	4,757,129
235-462	4,757,206
379-113	4,757,267
329-050	4,757,272
307-648	4,757,341
354-201	4,757,372
355-040	4,757,374
355-003	4,757,471
380-051	4,757,543

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PATENTS

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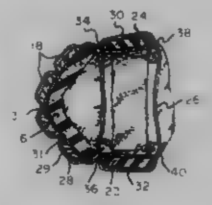
GENERAL AND MECHANICAL

4,756,026
LIMB PROTECTOR

Alfred R. Pierce, Jr., 25 Argyle Ave., Blackwood, N.J. 08012
Filed May 4, 1987, Ser. No. 45,892
Int. Cl.⁴ A41D *13/00*
U.S. Cl. 2—16 **23 Claims**



1. A protection sleeve for the protection of a player's limb from damaging blows during the play of a contact sport, the protection sleeve comprising:

(a) at least one protection panel of a sufficient size to cover a substantial portion of the surface area of the limb to be protected, the panel having a length, a width, and two ends, with lengthwise edges following along the length of the limb,

(b) two flexible elastic polymeric foam edge pads, each having a length at least equal to a portion of the length of the panel and a width, each edge pad positioned so that a lewngthwise edge abuts a lengthwise edge of the panel,

(c) elastic cover means comprising an elastic cloth cover, enveloping both edge pads, each comprising an inside piece of elastic cloth and an outside piece of elastic cloth, each piece having elastic stretch at least transverse to the length of the pads and wherein the cover is attached to the protection panel,

(d) at least one line of sitching attaching the two pieces of elastic cloth together, the stitching running between the abutting lengthwise edges of each pad and the panel, and

(e) an elastic attachment means fixed to the elastic cover means to hold the panel and the pads snugly against the limb to be protected,

wherein attachment of the elastic cover means to the elastic attachment means holds the foam edge pads in abutment with the elastic attachment means.

4,756,027
CUFF CONSTRUCTIONS

Anne M. Buenos, 424 Habersham St., Savannah, Ga. 31401; Jane M. Buenos, 425 Riverside Dr., New York, N.Y. 10025, and Leroy M. Sylverst, 910 Riverside Dr., Apt. 4G, New York, N.Y. 10032
Filed May 7, 1986, Ser. No. 860,403
Int. Cl.⁴ A41D *27/24, 19/00;* **A42B** *1/00;* **A41B** *7/00*
U.S. Cl. 2—123 **13 Claims**

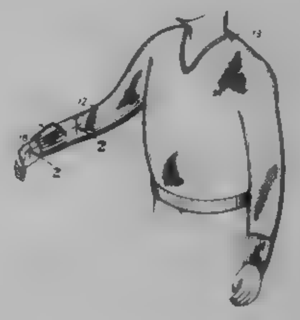
1. A cuff construction for an article or clothing, comprising:

at least one opening formed in the article of clothing;

a cuff having an inner surface and an outer surface formed about the opening and having a distal end;

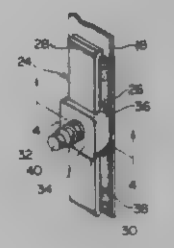
a panel having a distal end and two adjacent sides secured to the distal end of the cuff, the panel having a first side extending for at least a portion of the perimeter of the distal end of the cuff at the opening forming a fold line and the first side of the panel secured to the cuff at the opening and the two adjacent sides of the panel secured to the cuff for forming a pocket access facing away from the opening to define a first open position, the panel adapted to be folded once about the fold line from the first open position to a second closed position, the first open position allowing an appendage of a wearer to pass through the opening in the article of clothing and in the second closed position the panel folded over the opening to form a covering for the wearer's appendage; and

at least one finger covering integrally attached to the cuff and having a channel communicating with the inner surface of the cuff, the finger covering dimensioned to receive a finger of the wearer when the panel is in the closed position, the panel dimensioned so that the finger covering is concealed and stored in the pocket when the panel is folded once about the fold line from the second closed position to the open position.



4,756,028
SOUND REDUCTION HEADSET

Thomas A. Scanlon, 40 Hawthorne Ave., Barrington, R.I. 02806
Filed Jan. 20, 1987, Ser. No. 4,891
Int. Cl.⁴ A61F *11/02*
U.S. Cl. 2—209 **4 Claims**



1. In a sound reduction headset of the type having a flexible headband adapted to overlie the wearer's head and terminating in ends adapted for disposition opposite the wearer's ears and each such end in turn provided with an acoustical cup attached thereto and having generally rotational movement with re-

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spect to the end to which it is attached and adapted to at least partially enclose the wearer's ear; the improvement comprising, an adjustable connector means for connecting the cups to the headband ends to which they are respectively attached, said connector means including a longitudinally oriented outer end panel essentially forming the terminal end portion of each headband end and a longitudinally oriented inner end panel inwardly disposed from and generally parallel to said outer panel, and a slide member attached to said inner end panel, and adapted for vertical adjustable movement thereon, said slide member having a body in contact with an inner surface of said inner end panel and from which a connector element inwardly extends for attaching said cup to said adjustable connector means, said inner panel having a lateral extent materially less than that of said outer end panel such that the outer end panel essentially shields said connector means from contact with the wearer's hair that may contact and overlie the outside surface of said outer end panel.

4,756,029

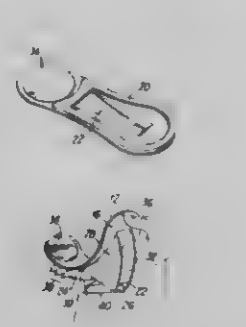
FEMININE URINARY DEVICE

Ron Zieve, and Terri Zieve, both of 1859 Gramercy Ct., Dunwoody, Ga. 30338

Filed Sep. 4, 1987, Ser. No. 93,047

Int. Cl.⁴ A47K *11/00, 11/02*

U.S. Cl. 4—144.4 **7 Claims**



1. A urinary device for use by a woman in a standing position comprising a substantially flat elongate flexible pad having a top and bottom surface and a longitudinally extending flap hingedly secured at one end to the pad, the opposite end of the flap being unsecured, the side edges of the flap having expandable side portions that extend between the flap and the pad which are capable of expanding the flap from a collapsed configuration where the flap is in planar alignment with the pad to an open expanded configuration where the flap forms an angle with the planar surface of the pad to form a urine conduit when the top surface of the pad is held firmly in position by the user with the conduit aligned with the opening of the urethra

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4,756,030

BATHROOM CONTROLLER

Steven J. Juliver, 665 Roselawn Ave., Apt. 307, Toronto, Ontario, Canada

Filed Sep. 23, 1987, Ser. No. 100,196

Int. Cl.⁴ E03C *1/04*

U.S. Cl. 4—192 **13 Claims**

1. A fluid controller for controlling fluid temperature and flow through a fluid flow discharge outlet supplied with hot and cold fluid from hot and cold fluid sources respectively via respective hot and cold fluid supply pipes and which controller comprises:

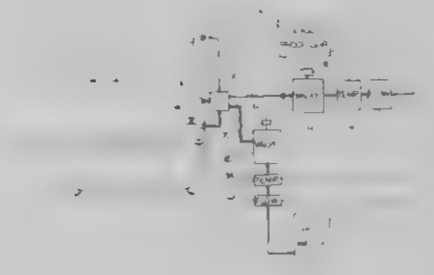
hot fluid flow-controlling valve means adapted to be installed in said hot fluid supply pipe upstream of said fluid flow discharge outlet and having hot fluid motor means operatively associated therewith to operate same and to control the flow of hot fluid therethrough;

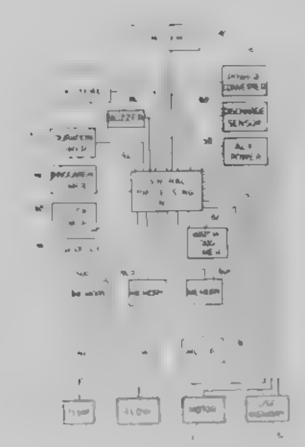
cold fluid flow-controlling valve means adapted to be installed in said cold fluid supply pipe upstream of said fluid flow discharge outlet and having cold fluid motor means operatively associated therewith to operate same and to control the flow of cold fluid therethrough;

hot fluid temperature-sensing means adapted to be attached to said hot fluid supply pipe upstream of said fluid flow discharge outlet and operative to sense the temperature of hot fluid flowing through said hot fluid supply pipe;

cold fluid temperature-sensing means adapted to be attached to said cold fluid supply pipe upstream of said fluid flow discharge outlet and operative to sense the temperature of cold fluid flowing through said cold fluid supply pipe;

hot fluid flow-sensing means adapted to be attached to said hot fluid supply pipe upstream of said fluid flow discharge outlet and operative to sense the rate of flow of hot fluid therethrough;





cold fluid flow-sensing means adapted to be attached to said cold fluid supply pipe upstream of said fluid flow discharge outlet and operative to sense the rate of flow of cold fluid therethrough;

a signal processor including comparator means connectable to a principal electrical power supply and connected to said hot and cold fluid motor means, to said hot and cold fluid temperature-sensing means and to said hot and cold fluid flow-sensing means, and a memory means operatively associated with said signal processor and adapted to store predetermined parameters concerning desired hot and cold fluid temperatures and flow values, and said comparator means being adapted to process information from said hot and cold fluid temperature-sensing means and said hot and cold fluid flow-sensing means and, in response thereto to calculate the temperature of the fluid at the discharge outlet and to compare said calculated temperature with a desired temperature in said memory means and to generate control signals for said hot and cold fluid motor means thereby to operate said hot and cold fluid flow-controlling valve means as needed to regulate the flow of hot and cold fluid in respective said hot and cold fluid supply pipes to procure the desired temperature at said discharge outlet.

4,756,031

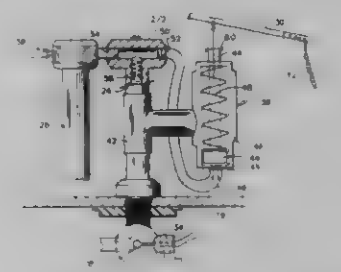
AUTOMATIC TOILET FLUSHING SYSTEM

John T. Barrett, 1725 Burton St., San Diego, Calif. 92111

Filed Nov. 13, 1986, Ser. No. 931,225

Int. Cl.⁴ E03D *5/12*

U.S. Cl. 4—407 **9 Claims**



1. An automatic toilet flushing system, comprising:

first sensor means for detecting use of a toilet and for providing a first control signal in response to use of the toilet;

second sensor means for detecting a predetermined water level in a toilet tank and for providing a second control signal in response to detection of the predetermined water level;

an inlet valve for controlling water flow into the toilet tank water inlet;

valve actuator means linked to said first and second sensor means for operating the water inlet valve, the actuator means comprising means for opening the water inlet valve in response to said first control signal and closing the water inlet valve in response to said second control signal;

toilet flush operator means for opening a flush valve in the tank to flush the toilet, the operator means comprising a cylinder having an inlet opening for connection to a water inlet to the tank, a piston slidably mounted in the cylinder and moveable between a retracted position and an extended position in which it projects out of the cylinder in response to the supply of water to the tank water inlet, and bias means for urging the piston towards its retracted position;

the piston having a catch member at its outer end for urging a flush valve member linked to said flush valve in a first direction during movement of the piston towards its extended position to urge the toilet flush valve into its open position, for releasing the flush valve member to allow it to move in a second direction to close the flush valve when the piston is fully extended, and for passing freely over the flush valve member during movement of the piston towards its retracted position.

4,756,032

INFLATABLE POOL

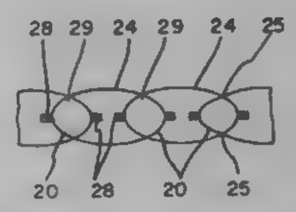
Cheng-Chung Wang, 7 Fl., No. 37, An Ho Road, Taipei, Taiwan

Continuation-in-part of Ser. No. 467,546, Feb. 17, 1983, Pat. No. 4,547,919. This application Sep. 29, 1986, Ser. No. 913,113

Int. Cl.⁴ E04H *3/18;* **A47K** *3/06*

U.S. Cl. 4—506 **2 Claims**

1. An inflatable pool comprising: a base member (11) made of gas impervious, heat sealable material having an edge bounding said base member; a hollow inflatable wall (12) made of a gas impervious, heat sealable material having its bottom end connected to said edge of said base member (11), said wall including a pair of first sheets (20) sealed at respective first seal seams (28) forming a plurality of compartments and a pair of second sheets (24) covering said compartments and sealed to each of said compartments at second seal seams (25), at least said second sheets (24) being also sealed together at their top edges (14) forming an envelope of the wall (12) and wherein said first seal seams (28) include pairs of seal seams causing said compartments (29) to be each separate from each other thereby forming a stronger and stiffer structure of the wall (12), said first sheets (20) being also sealed at their top edges (14) for forming independent air tight compartments (29) in the wall (12).



4,756,033

RESERVOIR FOR PLACING IN A FIXED POSITION ON THE GROUND AND METHOD FOR MANUFACTURING SAME

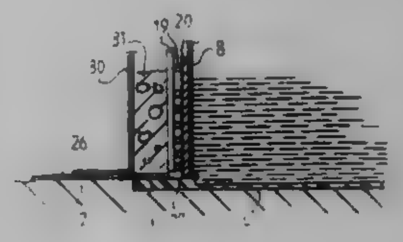
Hendrik W. Schelfhorst, Eerbeek 2, 8033 BJ Zwolle, Netherlands

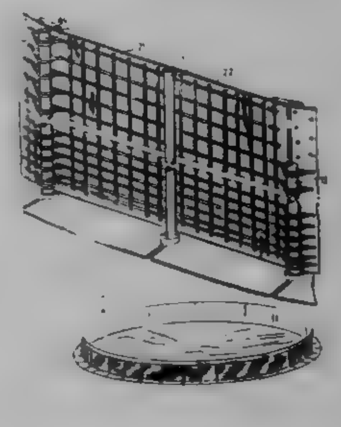
Filed Feb. 18, 1986, Ser. No. 829,965

Claims priority, application Netherlands, Feb. 21, 1985, 8500497; Nov. 1, 1985, 8503003

Int. Cl.⁴ E04H *3/18*

U.S. Cl. 4—506 **18 Claims**





1. A reservoir construction comprising the combination of a plurality of consecutively placed separate elements comprising ground-supported bottom means for defining a barrier impermeable to fluent material contained within the reservoir, a series of vertical piles disposed in spaced relation to each other in surrounding peripheral relation to the bottom means and embedded in the ground, wire mesh means secured to the piles for defining a reservoir space and a reaction structure encircling the reservoir space which is resiliently resistant to hydro-

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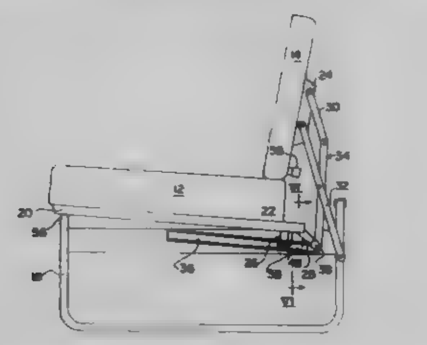
static pressure imposed thereon by fluent material resident in the reservoir space, and upstanding wall means cooperating with the bottom means and supported by the reaction structure for transferring the hydrostatic pressure to the reaction structure and for completing impermeability of the reservoir space by the fluent material.

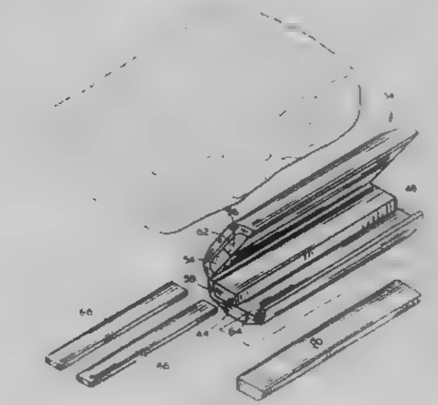
4,756,034
MOTORIZED SEAT-BED
David Stewart, 29391 U.S. 33 West, Elkhart, Ind. 46516
Filed Nov. 28, 1986, Ser. No. 935,753
Int. Cl.⁴ A47C *17/04*
U.S. Cl. 5—37 Z 15 Claims



1. A seat-bed assembly convertible between at least a seating position and a bed position, comprising:
- a seat member;
- a back member;
- a frame member having guide means therein;
- said guide means comprising a single track on at least one side of the frame member;
- linkage means for synchronizing movement of said seat member and said back member between said seating and said bed positions;
- said linkage means including a first portion fixedly connected to said seat member and slidably connected to said guide means;
- said linkage means also including a second portion pivotably connected to both said back member and said first portion;
- said first portion of said linkage means being disposed so as to restrict movement of said seat member to a path substantially parallel to said guide means during conversion between said seating position and said bed position as well as in the seat and bed positions;
- said first portion of said linkage means includes at least first and second spaced-apart link members for supporting said seat member within said guide means; and
- drive means mounted on said frame member and connected to said linkage means for controlling said movement of said seat member and said back member.

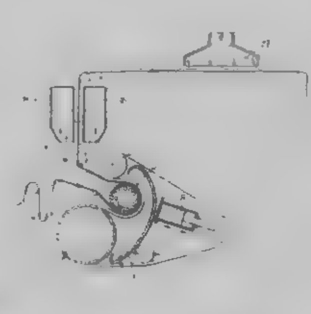
[illegible]
ORTHOPEDIC PILLOW
John K. Beier, 901 S. 89th, Omaha, Nebr. 68114
Filed Jul. 17, 1987, Ser. No. 74,891
Int. Cl.⁴ A47C *20/02*
U.S. Cl. 5—437 9 Claims

1. An orthopedic pillow, comprising,
- an outer pillow case having upper and lower ends, a top, a bottom, and opposite side edges, said pillow case having first and second compartments defined therein which extend between said opposite side edges,
- a quantity of fibrous material in said first compartment,
- an elongated resilient block member in said second compartment and having upper and lower ends, opposite side edges, a top and a bottom,
- said block member being at least partially longitudinally split along a horizontal plane to define upper and lower block portions,



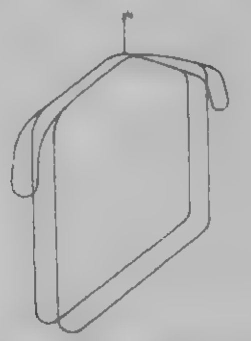
and means removably positioned between said block portions whereby the firmness of said block member may be selectively varied.

4,756,036
CONTINUOUS TREATMENT OF STRIP TEXTILE FABRICS
Dieter Riedel, Porta Westfalica, Fed. Rep. of Germany, assignor to Johannes Menschner Maschinenfabrick, Kampweg, Fed. Rep. of Germany
Continuation of Ser. No. 720,741, Apr. 8, 1985, abandoned. This application May 1, 1987, Ser. No. 45,237
Claims priority, application Fed. Rep. of Germany, Apr. 6, [illegible]
Int. Cl.⁴ D06B *5/08;* D06C *5/06*
U.S. Cl. 8—149.3 1 Claim



1. A method for the continuous dehumidification, drying and stabilization of strip material having limiting surfaces confining the fiber molecules which define intermicellar interspaces therebetween, the method including the steps of
- passing the strip material to be treated around the periphery of a drum,
- rotating the drum to drive the material therearound,
- heating the drum,
- passing a separately heated, impermeable pressure belt around the drum in contact with the material to be treated,
- the pressure applied by the belt to the material and the temperature of the drum being so selected that the swelling moisture in the intermicellar interspaces of the fiber molecules of the material is squeezed into said limiting surfaces of the material and, during the movement of the material around said drum, is converted into superheated steam.

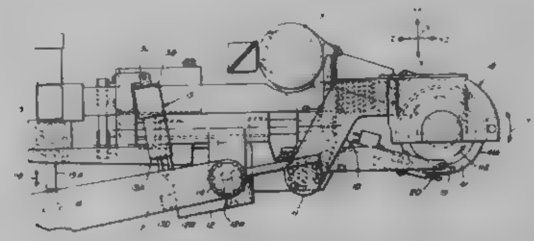
4,756,037
CONTINUOUS GARMENT DYEING WITH INDIGO AND OTHER VAT DYES
George McFadyen, Raleigh; Rob Stone, Cary, and Glenn Morton, Apex, all of N.C., assignors to Cotton Incorporated, New York, N.Y.
Filed Apr. 23, 1986, Ser. No. 854,873
Int. Cl.⁴ D06B *3/30*
U.S. Cl. 8—150 21 Claims



1. A process for dyeing a series of successive garments with a vat dye, comprising the steps of:
- (a) supporting the garments on forms such that all fabric surfaces of each garment are open to contact with liquids;
- (b) placing the supported and successive garments in a spaced adjacent relation on a conveyor means;
- (c) conveying the supported and successive garments to a first bath such that each garment is immersed therein at ambient temperature in an aqueous dyeing solution comprising a vat dye until each garment is uniformly impregnated with the aqueous dyeing solution of the vat dye;
- (d) transferring the supported, impregnated garments to a second bath wherein each garment is immersed at a predetermined temperature in an aqueous solution comprising an oxidizing agent so as to uniformly oxidize substantially all of the vat dye in the garment;
- (e) transferring the oxidized garments to a water wash system and washing the oxidized garments; and
- (f) transferring the washed garments to a drying system and drying the washed garments;

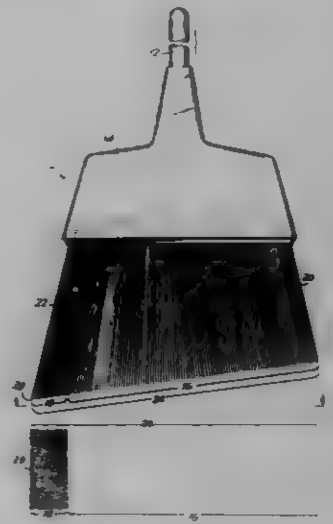
wherein, during steps (c) and (d), the garments are conveyed at a predetermined rate such that, in step (c) each garment is immersed in the aqueous solution comprising the vat dye for from about one to about five minutes, and in step (d), each garment is immersed in the oxidizing bath for from about two to about ten minutes.

[illegible]
MACHINE FOR AUTOMATICALLY ROUGHING THE CEMENT MARGIN OF A FOOTWEAR UPPER ASSEMBLY
Martin L. Stein, Bedford, Mass., assignor to International Shoe Machine Corporation, Nashua, N.H.
Continuation of Ser. No. 876,561, Jun. 20, 1980, abandoned. This application Sep. 21, 1987, Ser. No. 99,701
Int. Cl.⁴ A43D *95/00;* C14B *1/44*
U.S. Cl. 12—1 R 4 Claims



1. In combination with a machine for roughing a cement margin (103) of a footwear upper assembly (104) on a moving support, including a motor driven roughing tool (41), means (2, 15, 16, 17) for positioning the roughing tool in loading contact with the cement margin, controller means (5) connected to the positioning means for establishing said loading contact during movement of the cement margin on the support relative to the roughing wheel and pneumatic means (13A) for app;lying a contact pressure force to the roughing tool during said loading contact, the improvement residing in means for correctively varying the contact pressure force to maintain contact pressure at a substantially steady level between the roughing tool and the cement margin despite surface undulations thereon, comprising force transmitting means (10, 11) for operatively connecting the pneumatic means to the roughing tool, feedback sensing means (12) connected to the force transmitting means for detecting deviations in the contact pressure independently of the positioning means and servo-control means (4) connecting the feedback sensing means to the pneumatic means for effecting said corrective variation in the contact pressure force in rapid response to said detection of the deviations in the contact pressure to prevent excessive deviation thereof from the steady level.

[illegible]
BROOM
John Pardo, Yonkers, N.Y., assignor to The Drackett Company, Cincinnati, Ohio
Filed Jun. 25, 1987, Ser. No. 66,799
Int. Cl.⁴ A46B *9/00, 9/08*
U.S. Cl. 15—160 1 Claim



1. In an angled-cut bristle broom wherein the ends of the bristles form a longitudinal, planar sweeping surface, the sweeping surface being oblique to the handle of said broom and having front and back portions, the bristles forming the front portion being longer than the bristles forming the back portion, the improvement comprising:
- a predetermined number of the bristles adjacent the front portion of said sweeping surface being of a greater diameter than the other bristles in order to increase the stiffness of the front-portion-bristles over that of the other bristles.

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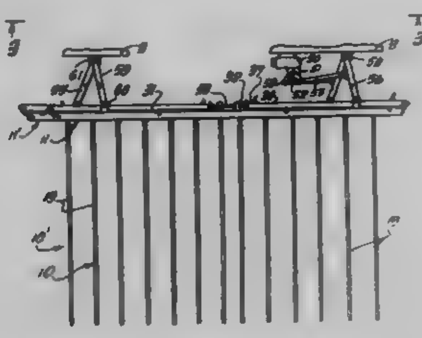
4,756,040
RETRACTABLE CURTAIN FOR AUTOMATIC CAR WASHES

Bernard Sereny, 15700 Olive Branch Dr., La Mirada, Calif. 90638

Filed Oct. 26, 1987, Ser. No. 112,365
Int. Cl.⁴ B60S *3/04*

U.S. Cl. 15—97 B 17 Claims



1. A retractable curtain comprising a plurality of free hanging flaps for use in automatic car wash apparatus comprising:
a first frame supported on a floor;
at least one curtain frame held by said first frame, said curtain frame having a pair of opposing rail means spaced apart and said curtain frame being elongated and having two opposing ends;
a plurality of flap support rods held by said pair of opposing rail means, each of said flap support rods supporting a downwardly hanging flap and each flap support rod having two ends;
each curtain frame having at least two lengths of interconnected links, each of said lengths having a first link which is pivotally connected at one end to one of said opposing ends and a second link of each of said lengths being connected to the other end of the first link at its first end and at its other end being connected to the first of said flap support rods, and a third link being connected at its first end to said first of said flap support rods and at its second end to a forth link which, in turn, is connected to a link which is pivotally connected to the second of said flap support rods, and so on, each of said lengths having its last link connected to a last flap support rod;
retraction means affixed to said last flap support rod, said retraction means moving said last flap support rod between its fully extended position and its fully retracted position whereby the flaps supported from said plurality of flap support rods may be retracted or extended as desired.

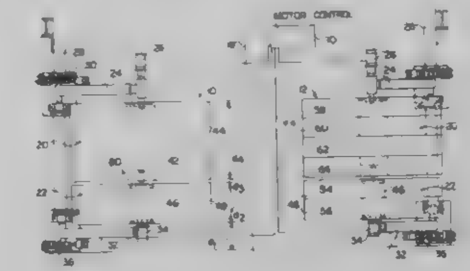
4,756,041
APPARATUS FOR WASHING THE UPRIGHT SURFACES OF VEHICLES

Daniel C. Hanna, 1133 SW. Rivington Dr., Portland, Oreg. 97201

Filed Jan. 17, 1987, Ser. No. 63,508
Int. Cl.⁴ [illegible]

U.S. Cl. 15—97 B 13 Claims

1. An apparatus for washing upright surfaces of a vehicle comprising:
an upper washer means rotatable about a first upright axis;
a lower washer means rotatable about a second upright axis;
means mounted to one of the upper or lower washer means for engaging the other of the upper or lower washer for coupling the upper washer means to the lower washer means so as to permit lateral shifting of the first and second axes relative to one another within limits; and
means for rotating the upper and lower washer means

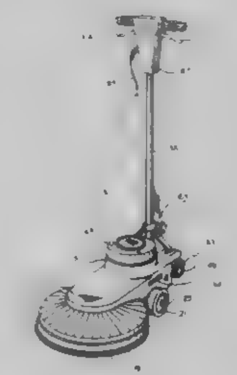


4,756,042
FLOOR POLISHING MACHINE

Vincent P. Genovese, Fort Worth, Tex., and Richard F. Wulff, Maple Plains, Minn., assignors to Southwest Manufacturers & Distributors, Inc., Fort Worth, Tex.

Continuation-in-part of Ser. No. 880,301, Jun. 30, 1986, abandoned. This application May 5, 1987, Ser. No. 47,033
Int. Cl.⁴ A47L *11/162*

U.S. Cl. 15—98 4 Claims



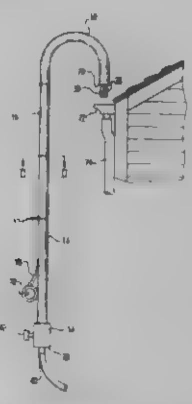
1. A floor polishing machine, comprising:
a one piece, rotationally molded base formed from a synthetic, non-conductive material, the base having a pad receiving portion integrally formed of the synthetic material for receiving a polishing pad;
a pair of wheels mounted on opposite sides of the base by means of an axle which passes transversely through the base;
a motor compartment formed in the rotationally molded base, the compartment being formed with an open top, vertical sidewalls, and a bottom wall;
an electric motor received with the motor compartment with the vertical sidewalls of the motor compartment approximately containing the motor;
drive means connecting the electric motor to the pad for driving the pad to polish a floor; and
a cap formed of a synthetic material for covering the open top of the motor compartment when the electric motor is installed within the compartment, whereby the electric motor is completely contained within the motor compartment.

4,756,043
GUTTER AND DOWNSPOUT CLEANER

James E. Hazelet, 453 Aurora Dr., Bricktown, N.J. 08723

Filed Oct. 28, 1986, Ser. No. 924,193
Int. Cl.⁴ B08B *9/02*

U.S. Cl. 15—104.16 17 Claims



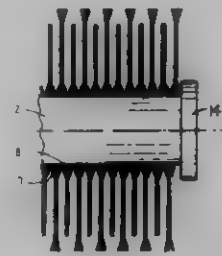
1. Apparatus for cleaning clogged debris from gutters and downspouts, comprising an elongated, rigid housing, said housing having a first end and a second end, said second end being bent; spraying means for spraying a fluid at the clogged debris, said spraying means being at least partially coextensive with said housing; and agitating means positioned at least partially within said housing for mechanically agitating the clogged debris, said agitating means being movable relative to and independently of said housing such that said agitating means can be repeatedly moved into and out of contact with the clogged debris, and said agitating means including a flexible snake which is wound onto a manually-operable reel attached to said housing in the vicinity of said first end thereof and which is mounted for reciprocating movement within said housing such that said snake can be extended outwardly from said housing through said second end thereof and can be retracted into said housing through said second end thereof, whereby said spraying means and said agitating means cooperate to dislodge the clogged debris.

4,756,044
TIRE BRUSH

Gaylord J. Clark, 4769 Paw Paw Lake Rd., Coloma, Mich. [illegible]

Filed Jan. 27, 1987, Ser. No. 7,170
Int. Cl.⁴ A46B *13/02, 9/06*

U.S. Cl. 15—182 7 Claims



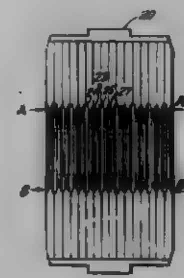
1. Improvements in a rotary tire brush for a vehicle washing appartus, said tire brush having an axially elongated central support shaft, and a plurality of bristles which are anchored relative to and project radially outwardly from said central shaft, said bristles being arranged in a cylindrical array which concentrically surrounds and extends axially along the central shaft, comprising the improvement wherein:
said plurality of bristles including a first plurality of abrasive bristles which are anchored to said central shaft and project radially outwardly therefrom both circumferentially and axially thereof for defining a first cylindrical array which concentrically surrounds the central shaft and extends axially therealong, said first cylindrical array having a first outer diameter as defined by the radially outer tip ends of said abrasive bristles;
said plurality of bristles including a second plurality of stiff nonabrasive bristles which are anchored to said central shaft and project radially outwardly therefrom both circumferentially and axially for defining a second cylindrical array in concentric and axially extending relationship relative to said central shaft, said second cylindrical array having a second outer diameter as defined by the radially outer tip ends of said nonabesive bristles, said second outer diameter being significantly larger than said first diameter;
the abrasive bristles of said first cylindrical array being interspersed in a uniform pattern both axially and circumferentially within the nonabrasive bristles defining said second cylindrical array so that said first and second cylindrical arrays extend axially between substantially the same axial limits; and
the tip ends of only the non-abasive bristles being flagged to define a plurality of filament-like elements which project inwardly along the nonabesive bristle through a short radial extent so as to define on the tip ends of the nonabrasive bristles an outer fluffy layer.

4,756,045
VACUUM CLEANER HOSE HAVING ALTERNATING HEIGHT CORRUGATIONS

Lee Gans, Teaneck, and Michael Truppe, Budd Lake, both of N.J., assignors to Action Technology, N.J.

Continuation-in-part of Ser. No. 871,159, Jun. 2, 1986, abandoned, which is a continuation of Ser. No. 683,346, Dec. 19, 1984, abandoned. This application Dec. 30, 1986, Ser. No. [illegible]
Int. Cl.⁴ A47G *29/08*; F16F *7/00*

U.S. Cl. 15—257 A 11 Claims



1. In combination, a vacuum cleaner and an air vacuum hose, said air vacuum hose comprising:
a hollow tubular-shaped member formed of a thermoplastic material, said tubular-shaped member being adapted to have a high degree of flexibility, crush and kink resistance and returnability back to its original shape, said tubular-shaped member further having a corrugated configuration such that the exterior peaks and valleys of the exterior surface respectively form the interior peaks and valleys of the hollow interior surface, said interior peaks having a substantially annular shape, said corrugations further contributing to the aforementioned flexibility, crush and kink resistance and returnability characteristics, wherein the heights of said corrugation peaks alternate between greater and lesser in an alternating series, such that a plurality of said corrugations having greater height peaks are each adjacent corrugations having lesser height peaks and a plurality of said corrugations having lesser height peaks are each adjacent corrugations having greater

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height peaks, said air vacuum hose being coupled by connecting means to an air intake port of said vacuum cleaner; and said tubular-shaped member being characterized by being substantially whistle-free as a result of airflow breakup resulting from said corrugated configuration when air passes through said member during operation of the vacuum cleaner.

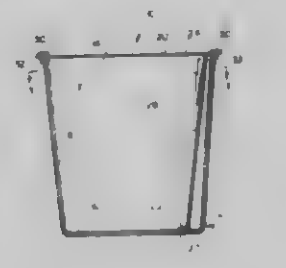
4,756,046
PAINTING ACCESSORY

James Surface, 1802 Kildare Dr., Redding, Calif. 96001, and Gary LaFountain, 2101 Marshallfield La., Redondo Beach, Calif. 90278

Filed Jul. 24, 1987, Ser. No. 77,427

Int. Cl.⁴ B44D *3/12*

U.S. Cl. 15—257.06 15 Claims



1. An accessory for a reusable paint bucket comprising a concave, disposable liner configured for insertion into a reusable paint bucket and having a circular floor and an upright wall rising from said floor to form an open mouth and with at least a pair of inwardly directed, mutually parallel wall ribs formed in said upright wall in spaced separation from each other, and an upwardly directed floor rib formed in said floor between said wall ribs, and a flat paint screen configured for insertion into said paint bucket liner in lodged, removable engagement with said ribs, whereby said ribs together hold said screen immobilized at an inclined orientation within said [illegible].

4,756,047
APPARATUS FOR REMOVING ORGANIC SUBSTANCE FROM SUBSTRATE

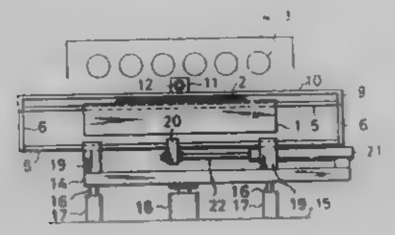
Noriyuki Hayashi, Shiga; Hiroshi Murayama, and Yukihiko Ishino, both of Kyoto, all of Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

Filed Oct. 15, 1986, Ser. No. 919,226

Claims priority, application Japan, Oct. 28, 1985, 60-[illegible]

Int. Cl.⁴ B08B *3/02, 5/02*

U.S. Cl. 15—306 B 8 Claims



1. An apparatus for removing organic substances from a substrate, comprising a hot plate defining a support surface for receiving the substrate and heating that substrate to a desired temperature; ultraviolet lamps fixedly arranged above said hot plate and disposed in parallel with said surface of said hot plate; and an ozone blow-off pipe provided with downwardly directed toward said surface openings; said ozone blow-off pipe being reciprocatable relative to and parallel with said surface of said hot plate.

4,756,048
DEVICE FOR CLEANING LARGE-AREA TEXTILE COVERINGS ESPECIALLY CARPETS AND CARPETED FLOORS

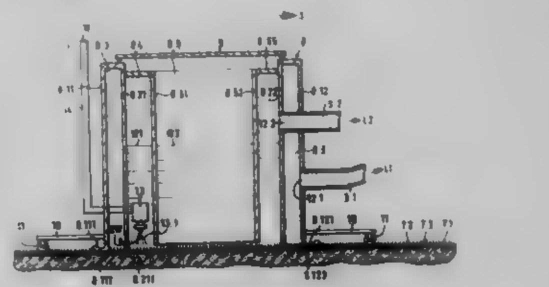
Horst Kauffeldt, Bachstr. 150, and Thomas Kauffeldt, Kyffhauser Str. 27, both of, 4000 Dusseldorf, Fed. Rep. of Germany

Filed Jul. 22, 1986, Ser. No. 888,531

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1985, 3526202

Int. Cl.⁴ A47L *11/34*

U.S. Cl. 15—320 20 Claims



1. In a device for cleaning a large-area textile covering, which is movable in a direction of travel and has a bottom disposed on the textile covering, the improvement comprising: means forming an open-bottomed central chamber, means forming an open-bottomed annular rinsing chamber around the central chamber and contiguous thereto, means forming an open-bottomed annular suction chamber around the rinsing chamber and contiguous thereto and including an outer wall having a bottom edge in contact with the textile covering during use and defining a contact plane, means for evacuating the suction chamber, wherein the means forming the central chamber include walls corresponding to inner walls of the rinse chamber and having bottom edges disposed above the contact plane; at least one spray nozzle disposed in the rinsing chamber and facing the bottom thereof and receptive of a supply of fresh water and means for maintaining a predetermined level of liquid in the central and rinsing chambers above the at least one spray nozzle.

4,756,049
SELF-PROPELLED CLEANING TRUCK

Masao Uehara, Kyoto, Japan, assignor to Murata Kaiki Kabushiki Kaisha, Kyoto, Japan

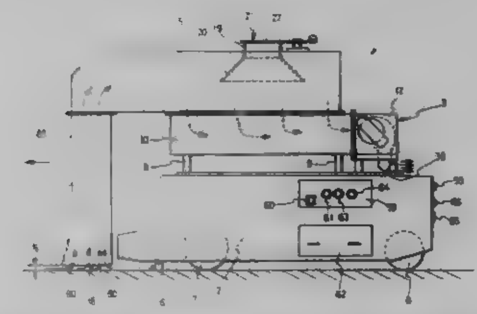
Filed Jun. 25, 1986, Ser. No. 878,132

Claims priority, application Japan, Jun. 21, 1985, 60-136711

Int. Cl.⁴ A47L *5/14*

U.S. Cl. 15—340 3 Claims

1. A fly waste removing system comprising a self-propelled cleaning truck which includes a self-propelled truck, a blower, a first suction duct connected to the blower and having a suction opening for sucking fly waste and the like, and a fly waste storing box located between said blower and said first suction duct, said blower, first suction duct and fly waste storing box being carried on said self-propelled truck, a fly waste discharging station, programmed to stop at predetermined times at said fly waste a mechanism in said fly waste storage box for discharging a mass of fly waste collected within the fly-waste storing box, said mechanism comprising a communicating member which includes a cylindrical member extending through an opening in a top wall of the fly waste storing box, a funnel-shaped member formed in an integral relationship with the cylindrical member, and a movable lid member which is located adjacent an opening at the top of the communicating member selectively to close the opening of the communicating member and mounted for pivotal motion on the fly waste storing box.



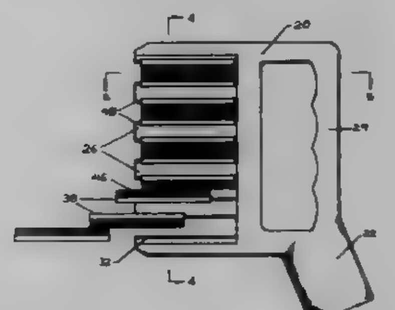
4,756,050
VACUUM CLEANER ATTACHMENT FOR CLEANING A MULTIPLE OF SLATS OF A VENETIAN BLIND

James G. Vesely, 382 Hamilton St., Costa Mesa, Calif. 92627

Filed Sep. 21, 1987, Ser. No. 98,951

Int. Cl.⁴ A47L *4/00, 9/02*

U.S. Cl. 15—394 10 Claims



1. A vacuum cleaner attachment for cleaning both sides of a plurality of slats of a Venetian blind comprising:

a body with a hollow cross section, means for manually holding one side of said body in a vertical position and angularly inclined to said holding means is a tubular neck portion with a hollow cross section having communication with said body and having means for attachment to a vacuum hose, extending from the opposite side of said side of said body are a plurality of fingers of appropriate length that are horizontal to said body and have opposing rectangular faces, longitudinal edges, and hollow rectangular cross sections, said opposing faces have lip structures which run along the longitudinal edges of the fingers, said fingers being appropriately spaced, whereby said fingers can straddle the slats of a Venetian blind, said opposing rectangular finger faces having apertures on a longitudinal center axis and said apertures communicating with passages of said fingers, said body, and said tubular neck,

brush plates being rectangular in shape and having apertures in registry with said apertures on said opposing rectangular finger faces, and having approximately the same lateral dimensions as said opposing rectangular finger faces, a means thereof where said brush plates can be easily mounted or dismounted and means to lock in place said brush plates to said opposing rectangular finger faces, said brush plates having bristles affixed to their faces and when said brush plates are locked in position on said finger faces said bristles will extend towards each other in a way so as the ends of said bristles meet but do not overlap and said bristles will be excluded from an area along said longitudinal center axis, whereby said bristles will not restrict said apertures.

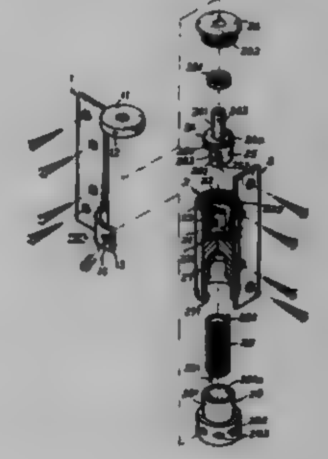
4,756,051
DOOR-CLOSER HINGE WITH ROTARY-MOVEMENT SHOCK ABSORBER

Haw-Yaw Shy, 762, Chung Hua Rd., Sec. 1, Taitung, Taiwan

Filed Jan. 23, 1987, Ser. No. 6,236

Int. Cl.⁴ E05F *3/20, 1/12, 5/02*

U.S. Cl. 16—50 5 Claims



1. A door-closer hinge with a rotary-movement shock absorber comprising:

a first flap having an upper collar and a lower arched leaf, adapted to fix on a door;

a second flap opposite to the first flap and adapted to fix on a door frame; and

an automatic closer including:

a longitudinal casing secured to said second flap; an upper cylinder formed on an upper portion of said casing and filled with a hydraulic oil therein; a cylinder vane made of elastomer materials having V-shaped cross section and having an inner wing adhered on a cylindrical wall of said upper cylinder, an outer wing having its divergent end protruding counter-clockwise and resiliently contacting a rotor and having its convergent end tapered in a direction opposite to the protruding direction of the divergent end to integratedly combine with said inner wing, a web sealer formed on the upper edge of said cylinder vane as defined between said two wings of said cylinder vane and an annular packing ring formed on the lower edge of said cylinder vane; a rotor having an upper spindle protruding upwards from a central disk to rotatably engage with a cap fixed on the top end of said upper cylinder and to be uttermostly secured to said upper collar, a pair of needle passages separated in about 90 degrees as formed in said rotor and commonly communicated with a central hole formed through said upper spindle in which said central hole is sealed by an upper plug passing through said upper collar and in which two said neede passages having two outlets respectively positioned near two ends of an inner wing of a rotor vane; the rotor vane made of elastomer materials having a V-shaped cross section and having the inner wing adhered on the rotor, an outer wing having its divergent end protruding clockwise to resiliently contact a cylindrical wall of said upper cylinder and having its convergent end integratedly combined with a front end of said inner wing, and a web sealer formed on the lower edge of said rotor vane as defined between two said wings of said rotor vane; a lower cylindrical chamber formed on

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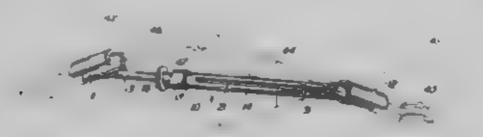
the lower portion of said casing rotatably engaged with a lower plug adjustably fixed on said lower arched leaf of said first flap; and a restoring spring having its one end secured to said casing and having the other end thereof secured to said lower plug, whereby upon the opening of a door provided with said hinge, the hydraulic oil in said upper cylinder will be forced from the right to the left through an aperture between said rotor vane and said upper cylinder and the other aperture between said cylinder vane and said rotor for quick opening of the door; and upon the closing of the door as restored by said restoring spring, the oil will be returned back to the right by passing through said needle passages for slow closing and shock absorbing purpose.

4,756,052

DOOR STOP

James L. Diedrich, P.O. Box 21587, Billings, Mont. 59104
Filed Sep. 3, 1985, Ser. No. 772,001
Int. Cl.⁴ E05F *5/02*
U.S. Cl. 16—82 1 Claim



1. A method of keeping a door open, the door being of the type having a first brace linkage and a second brace linkage; the method comprising the steps of:

(a) providing a door stop having a first elongate member having a first end and a second end; a second elongate member having a first end and a second end wherein said second end of said first elongate member is slideably disposed to said second end of of said second elongate member; a door brace linkage engaging means pivotally attached to said first end of said first elongate member; a door frame brace linkage engaging means pivotally attached to said first end of said second elongate member; and a locking means for selectively locking said first elongate member with respect to said second elongate member;
(b) positioning the door brace linkage engaging means on said first brace linkage;
(c) positioning the door frame brace linkage engaging means on said second brace linkage; and
(d) selectively locking said first elongate member with respect to said second elongate member

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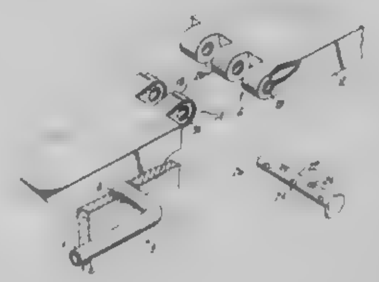
4,756,053

NOZZLE FLAP HINGE JOINT

William M. Madden, Palm Springs; Claude R. Stogner, Palm Beach Gardens, and Charles E. Spaeth, Tequesta, all of Fla., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Feb. 24, 1987, Ser. No. 18,118
Int. Cl.⁴ E05D *11/00*
U.S. Cl. 16—223 3 Claims

1. A flap assembly hinge joint for a gas turbine engine exhaust nozzle, comprising:

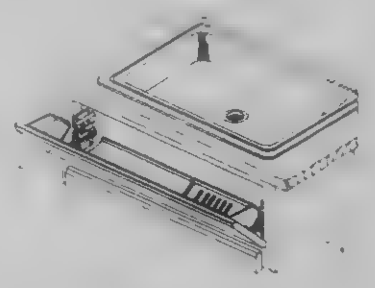
(a) a first hollow flap having a first chamber defined therein and being adapted for promoting flow of cooling air therethrough, and a first plurality of linearly spaced apart first lug extensions defined along a first flap edge thereof and aligned along a pivot axis near said first flap edge;
(b) a second hollow flap pivotally mounted to said first hollow flap and having a second chamber defined therein and being adapted for promoting flow of cooling air therethrough, and a second plurality of linearly spaced apart second lug extensions defined along a second flap edge thereof, said second flap disposed adjacent said first flap with corresponding said second lug extensions alternated with said first lug extensions along said pivot axis;
(c) each of said first lug extensions and said second lug extensions including means defining passageways therethrough in communication with the corresponding said first chamber and said second chamber, and further including means defining axial openings of preselected size aligned along said pivot axis; and
(d) a hollow, generally cylindrically shaped hinge pin, disposed along said pivot axis and received by said axial openings in alternate said first lug extensions and said second lug extensions, said pin further including a third plurality of openings disposed along the length of said pin, said openings located in communicating relationship with respective said passageways in said first lug extensions and said second lug extensions of the respective said first hollow flap and said second hollow flap.



4,756,054

TIP OUT HINGE

Richard K. Mitts, Fullerton, Calif., and J. Kevin Jones, Jeffersontown, Ky., assignors to Rev-A-Shelf, Jeffersontown, Ky.
Filed Mar. 25, 1987, Ser. No. 30,224
Int. Cl.⁴ E05D *7/04*; E05F *1/14*
U.S. Cl. 16—237 11 Claims



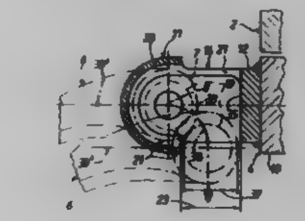
3. A storage system secured within a cabinet by a pair of tip out hinges comprising:

a. a pair of base plates, one secured to each side of an opening in a cabinet;
b. two pairs of first and second pivot bars, each pair rotatably secured to one of the base plates;
c. a pair of brackets, one secured to each pair of first and second pivot bars wherein when the hinge is in a closed position the upper ends of each said first and second pivot bars are secured to one of the base plates and the lower ends of each said first and second pivot bars are secured to one of the brackets;
d. a false front securable to the pair of brackets; and
e. a storage container securable to the false front.

4,756,055

HINGE JOINT

Franz-Peter Welsch, Mechernich; Fritz Otto, Remscheid, and Friedhelm Bick, Solingen, all of Fed. Rep. of Germany, assignors to Carl Stilberg GmbH & Co., Remscheid, Fed. Rep. of Germany
Filed Dec. 5, 1986, Ser. No. 938,790
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1985, 3534442[U]
Int. Cl.⁴ E05D *7/10, 1/04*
U.S. Cl. 16—260 9 Claims



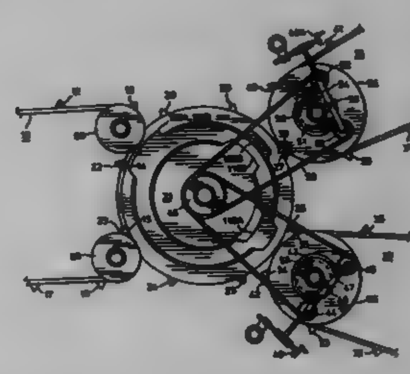
1. A hinge joint, comprising a hinge leaf which is securable to a closure element and has a knuckle bearing; a hinge bolt defining a hinge joint axis and pivotally mounting said closure element via said knuckle bearing; a hinge bearing having a base securable adjacent to an edge of an opening, said hinge bearing having legs between which said knuckle bearing is positioned and which carry said hinge bolt, said knuckle bearing having at least one first protrusion extending axially outwardly and arranged concentrically relative to said hinge bolt, at least one of said legs having an axially inwardly extending second protrusion which axially overlaps said first protrusion, said hinge leaf together with said closure element being arranged so that it can be removed from said hinge bearing only after removal of said hinge bolt and after opening said closure element through a predetermined first pivot angle, said at least one first protrusion being annular, said at least one second protrusion being formed as an enclosing retainer of an associated one of said legs and arranged radially outside of an associated one of said first protrusions, said enclosing retainer at at least one side face of said leg being provided with an access passage for said at least one first protrusion; and cam means provided on said hinge leaf, so that only in a pivoted position of said closure element corresponding to said predetermined first pivot angle there is a minimum dimension of said cam means extending perpendicular to said hinge joint axis with said hinge bolt removed, so that the passage of said at least one first protrusion through an associated one of said access passages is possible.

4,756,056

POULTRY TRANSFER APPARATUS

Robert S. Innes, 92 Queensdale Avenue East, Hamilton, Ontario, Canada (L9A 1K3), and Bernard McGuire, 211 Cochrane Road, Hamilton, Ontario, Canada (L8K 3G2)
Filed Jun. 11, 1987, Ser. No. 60,655
Int. Cl.⁴ A22C *21/00*
U.S. Cl. 17—11 16 Claims

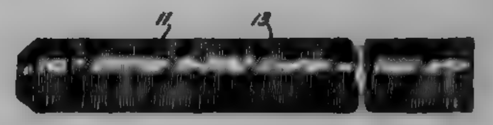
1. A transfer mechanism for transferring poultry carcasses from a first conveyor line to a plurality of secondary conveyor lines comprising a rotary carousel including a plurality of carcass-retaining modules, said conveyor lines including shackles for carrying said poultry carcasses by their leg portions, individual means in each of said modules for sequentially clamping said carcasses in said modules and releasing them from said first conveyor line shackles, means for individually releasing and ejecting said carcasses from certain of said modules and receiving them in the shackles of one of said secondary conveyor lines, means for individually releasing and ejecting said carcasses from certain other of said modules and receiving them in the shackles of another of said secondary conveyor lines.



4,756,057

METHOD OF MAKING HIGH COHERENCY SHIRRED CASING

Marion E. McAllister, Clarendon Hills, and Robert W. Snedeker, Downers Grove, both of Ill., assignors to Viskase Corporation, Chicago, Ill.
Division of Ser. No. 283,244, Jul. 17, 1981, Pat. No. 4,640,961.
This application Sep. 5, 1986, Ser. No. 903,919
Int. Cl.⁴ A22C *13/02*
U.S. Cl. 17—45 4 Claims



1. In a method of making a coherent self-sustaining shirred stick composed of a length of tubular casing by shirring the tubular casing to form pleats along a substantially continuous first helical locus wherein the shirring develops and applies a basic rotational force tending to rotate the shirred stick about its longitudinal axis in a direction opposite to the direction of the first helical locus, the improvement comprising:

applying to the stick as it is being shirred a supernumerary rotational force which is always opposite in rotational direction to said basic rotational force, thereby
displacing the pleats from each other along a second helical locus which extends in the same direction as said first helical locus, and
the supernumerary force having a rotational frequency greater than the rotational frequency of said basic rotational force.

4,756,058

ELECTRONIC CONTROL APPARATUS FOR CONTROLLING SETTING ELEMENTS IN A FISH PROCESSING MACHINE

Holger Gillelis, Lübeck, and Franz Hartmann, Bad Oldesloe, both of Fed. Rep. of Germany, assignors to Nordischer Maschinenbau Rud. Baader GmbH + Co KG, Lubeck, Fed. Rep. of Germany
Filed Aug. 5, 1987, Ser. No. 81,825
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1986, [illegible]
Int. Cl.⁴ A22C *25/00*
U.S. Cl. 17—54 20 Claims

1. An electronic controlling apparatus for use in a fish pro-

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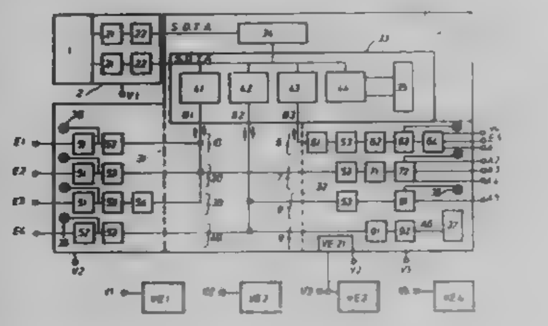
cessing machine comprising a conveying path for fish to be processed with processing means arranged along said conveying path and at least including tools and guides which are controlled with respect to their operational times and movements, as well as setting elements for setting the operational times and control paths of said processing means, said controlling apparatus being adapted to control said setting elements and comprising

(a) a first modular unit forming a programmable central processor (CPU) for storing fish species data and data of said fish processing machine;



(b) a second modular unit connected to said first unit and including signal amplifying and adapting means; and

(c) a third modular unit designed as peripheral circuit means for said central processor, which third unit includes a control unit, connected to said second unit and forming in common memory, combinatorial and controlling means for detected fish value data, input and output control data, as well as an input part and an output part, each connected to said control unit and adapted for signal decoupling, conditioning, processing and disturbance elimination.

4,756,059
FIBER BALE OPENER

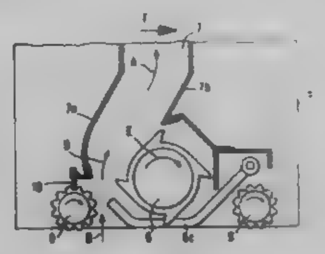
Josef Temburg, Jüchen, Fed. Rep. of Germany, assignor to Trützschler GmbH & Co. KG, Moenchen-gladbach, Fed. Rep. of Germany

Filed Feb. 2, 1987, Ser. No. 9,521

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1986, [illegible]; Nov. 3, 1986, [illegible]

Int. Cl.^{4} D01G *7/10, 7/04*

U.S. Cl. 19—80 R 14 Claims



1. In a fiber bale opener including a downwardly open housing adapted to be supported above fiber bales to be opened and accommodating an opening device having a width dimension; said opening device including an opening roller oriented parallel to the width dimension and arranged for removing fiber tufts from upper bale surfaces and a suction duct through which fiber tufts detached from the bales by the opening roller are adapted to be removed by a suction air stream flowing therethrough; said suction duct having two transverse walls facing one another and being spaced from one another in a direction perpendicular to the width dimension; said transverse walls extending substantially over the entire width dimension and each having a lower terminus defining a zone with an upper bale face situated underneath the opening device during operation thereof; the improvement comprising means for sealing said zone for substantially preventing air from passing through said zone along said width dimension.

4,756,060
HOSE BAND

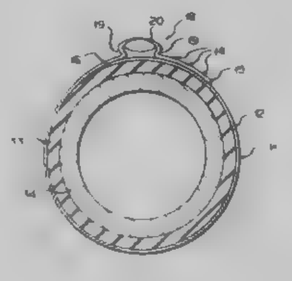
Juji Ojima, Ebina, Japan, assignor to NHK Spring Co., Ltd., Yokohama, Japan

Filed Sep. 10, 1986, Ser. No. 906,092

Claims priority, application Japan, Nov. 18, 1985, 60-176954[U]; Mar. 27, 1986, 61-67172

Int. Cl.^{4} F16L *33/02*

U.S. Cl. 24—20 CW 19 Claims



1. A hose band defining an inner area with an inward direction extending toward said inner area and an outward direction extending away from said inner area, comprising:

a metal band having two faces, an inwardly and an outwardly facing surface each including in the widthwise direction of the band a terminal free surface adapted to be wrapped around a hose and having two end portions, one overlying the other;

an engagement hole formed in the overlying end portion of the metal band;

a projection formed in the underlying end portion of the metal band and arranged to be fitted into said engagement hole; and

a tightening lug forming part of the metal band and comprising a pair of legs protruding a given distance from said band in the outward direction and set apart in the lengthwise direction of the band, and a main section connecting the outermost ends of the legs, said main section, when viewed in the widthwise direction of said band, having a center portion between two side edges of the main section thereby defining each of said side edges as including portions of said inwardly and outwardly facing surfaces, said main seciton being plasticially bent in such a way that the center portion protrudes in the inward direction relative to said given distance, and lines tangent to either said inwardly facing or outwardly facing terminal free surfaces of the side edges extend in the outward direction;

wherein the side edges of said main section comprise ribs having at least a portion thereof extending away from said legs to project in the outward direction relative to said given distance.

4,756,061
END TERMINATING MEANS FOR ZIP FASTENERS

James T. Jones, and Dennis N. H. Jones, both of 24B Weatherhill Road, Smallfield, Horley, Surrey, United Kingdom

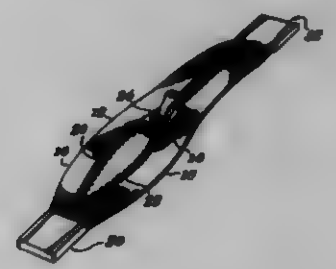
Filed May 21, 1987, Ser. No. 53,115

Int. Cl.^{4} A44B *19/36*

U.S. Cl. 24—433 8 Claims

1. End terminating means for a zip fastener comprising two strips of material adapted to be releasably secured together, said end terminating means comprising:

a receptacle having an open end through which adjacent ends of the strips are insertable, said receptacle comprising a box-like structure of substantially rigid material having said open end and a closed end remote from said open end, two opposing closed sides, a base and an opening above said base, and a lid pivoted at said remote end; and



locking means to lock said lid to said box-like structure to close said opening; and

securing means to retain said ends in said receptacle when said lid is closed.

4,756,062
PROCESS OF NEEDLING A FIBROUS WEB FROM BOTH SIDES

Ludwig Kis, Goldwörth, Austria, assignor to Textilmaschinenfabrik, Leonding, Austria

Filed Jun. 26, 1987, Ser. No. 66,851

Claims priority, application Austria, Jul. 17, 1986, 1945/86

Int. Cl.^{4} D04H *18/00*

U.S. Cl. 28—107 1 Claim

1. A process of needling a finite length of a fibrous web having a longitudinal axis, two longitudinal edges, two opposite ends and two sides, which comprises the steps of

(a) twisting the opposite web ends through 180° relative to each other about the longitudinal axis and joining the twisted web ends to form a Mobius web having two substantially planar courses,

(b) continuously feeding the planar courses of the Mobius web in endless loop form through a needling station while guiding the web to avoid a distortion thereof resulting in a permanent elongation of the longitudinal web edges, and

(c) needling the web from both sides by piercing the same in only one direction.

4,756,063
METHOD AND ARRANGEMENT FOR CRIMPING CABLES OF SYNTHETIC FIBERS

Ernst Vehling, and Diethard Hueckner, both of Bordesholm, Fed. Rep. of Germany, assignors to Neumuensterische Maschinen- und Apparatebau GmbH, Neumuenster, Fed. Rep. of Germany

Continuation of Ser. No. 783,752, Oct. 3, 1985, abandoned. This application Dec. 15, 1986, Ser. No. 942,806

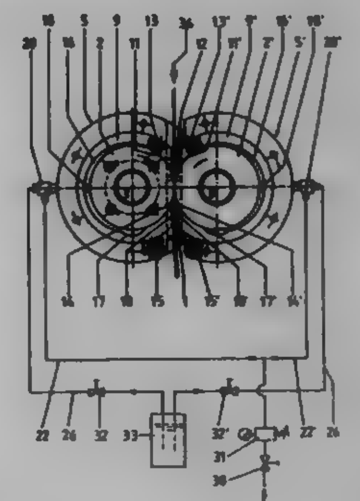
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1984, [illegible]

Int. Cl.^{4} D02G *1/12*

U.S. Cl. 28—269 12 Claims

1. A method of crimping cables of synthetic fibers, comprising the steps of supplying a cable by means of rotatable compression rolls with a high speed into a compression chamber which is formed in a housing provided with an inlet opening; mixing a cooling air with water in a mixing chamber of an injector having an outlet opening so as to form a mixture of cooling air with fine water droplets, said mixing including supplying a cooling air to said mixing chamber in a predetermined direction through a central passage, and supplying cooling air to said mixing chamber through a plurality of passages arranged in a skewed manner relative to said central passage and to said direction, so that the air is whirled by the skewed passages and produces a negative pressure to aspirate the water from a water supply source; and blowing the cooling air with fine water droplets directly from the outlet opening of the injector into the inlet opening of the housing without supplying the same through intermediate passages, so as to finally flow into the compression chamber.

7. An arrangement for crimping cables of synthetic fibers, comprising a housing provided with a compression chamber and an inlet opening; rotatable compression rolls arranged to supply a cable with a high speed into said compression chamber of said housing; and an injector having a mixing chamber in which cooling air is mixed with water to form a mixture of cooling air with fine water droplets, said injector having an outlet opening which is directly connected with said inlet opening of said housing without intermediate passages so as to blow the cooling air with water droplets directly into said housing, so as to finally flow into the compression chamber, said injector having a central passage through which water is supplied to said mixing chamber and a plurality of skewed passages which are inclined relative to said central passage for supplying cooling air into said mixing chamber, so that the air is whirled by the skewed passages and produces a negative pressure to aspirate the water from a water supply source.



4,756,064
METHOD FOR MAKING CAPACITOR ELEMENTS

Toshiya Yoshii, Otsu, and Kazuo Okabe, Shiga, both of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Division of Ser. No. 697,845, Feb. 4, 1985, Pat. No. 4,708,905. This application Feb. 11, 1987, Ser. No. 13,280

Claims priority, application Japan, Feb. 6, 1984, 59-18244

Int. Cl.^{4} [illegible]

U.S. Cl. 29—25.42 12 Claims

1. A method for making capacitor elements having an ultra thin dielectric layer which comprises:

cutting, in a predetermined width, a metal-deposited laminated film comprising an oriented ultra thin polyethylene terephthalate film having a thickness of 0.2 to 2.0 μm, on one surface of which a metal layer is formed by vacuum deposition and on the other surface of which a propylene copolymer film as a support film is bonded with an adhesive force of 0.1 to 2.0 g/cm, and

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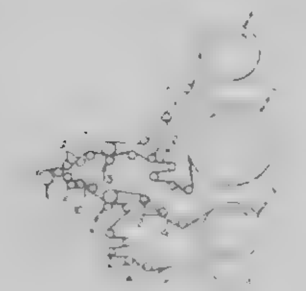
forming capacitor elements by separating the metal-deposited polyethylene terephthalate film from the cut laminated film and forming the metal-deposited polyethylene terephthalate film into a coil.



4,756,065

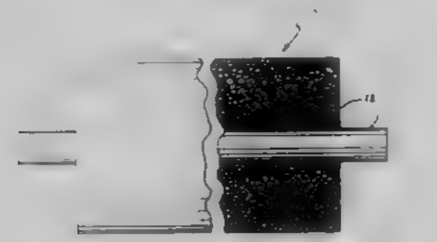
PASTER ROLLER

James Carlson, Racine, Wis., assignor to American Roller Company, Bannockburn, Ill.

Filed Jan. 27, 1987, Ser. No. 7,001

Int. Cl.⁴ B21B *31/08*

U.S. Cl. 29—132 4 Claims



1. A paster roller consisting of
(a) a relatively rigid core;
(b) an intermediate layer of open celled foam, said foam consisting essentially of an organic polymer; and
(c) a coating of cured silicone elastomer on the walls of the open cells of the foam, said coating being thinner on the walls of the cells closer to the core and thicker on the walls of the cells further from the core so that the shearing force that might be exerted when it contacts a rapidly moving surface will be minimized.

4,756,066

END OF ARM TOOLING FOR GEROTOR OIL PUMP ASSEMBLY

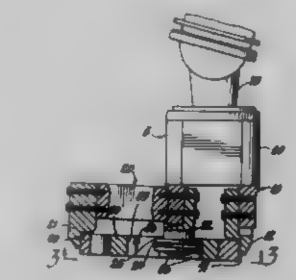
John W. Scharlacken, Orleans, Mass., and Samuel Bergamo, Metamora, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 1, 1987, Ser. No. 56,224

Int. Cl.⁴ B23P *15/00*

U.S. Cl. 29—156.4 R 11 Claims

4. A method of using a robot or the like to load a gerotor oil pump gear assembly including a primary outer gear having first and second sides and a secondary inner gear into an oil pump housing utilizing an end of arm tooling device (EOAT) gripper, said method in combination comprising:
connecting with said EOAT gripper a first jaw, and a second jaw having two fingers;
grabbing a first side of the primary gear with said first jaw;
grabbing said second side of the primary gear with said first finger of said second jaw;
capturing said secondary gear to said first side of said primary gear with said second finger of said second jaw;



relatively moving said second finger with said secondary gear whereby said second finger imparts an eccentric rotational movement to said secondary gear to kick out said secondary gear from possible lock ups with said primary gear allowing said robot or the like to grab said gear assembly.

4,756,067

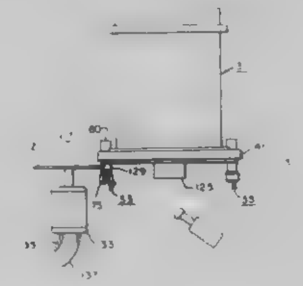
MANUAL REPLACEMENT OF OLD SPLIT-PIN ASSEMBLIES BY NEW SPLIT-PIN ASSEMBLIES

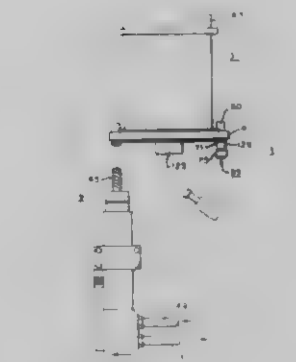
David A. Howell, Plum Boro; Arthur W. Kramer, Murrysville Boro, and Joseph J. Hahn, Brentwood, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 31, 1986, Ser. No. 891,016

Int. Cl.⁴ G21C *19/00*

U.S. Cl. 29—402.08 25 Claims





1. The method of replacing an old split-pin assembly mounted in a guide tube of a nuclear reactor by a new split-pin assembly, said tube having a flange, said old split-pin assembly including an oil split pin having a flange secured to a flange of

said guide tube by an old nut with the flange of said old split pin engaging the base of a counterbore in the bottom of said flange of said guide tube and the new split-pin assembly including a new split pin also having a flange to be secured to the flange of said guide tube by a new nut; the said method comprising severing said old split pin in the region below said flange of said old split pin into a first pin fragment which is separated from said flange of said old split pin in said guide tube, and a second fragment including said flage of said old split pin and said old nut, which second fragment remains secured to said guide tube with the region of said second fragment where the first fragment was separated exposed, engaging a drill with said second fragment in said exposed region where said first fragment was severed from said old split-pin fragment, said drill being positioned axially of said second fragment and having a bit having a diameter approximately equal to the diameter of the shank of said old split pin, operating said drill to drill axially along said second fragment to separate said second fragment into a third fragment including said flange of said old split pin and a fourth fragment including the remainder of said old split pin and said old nut, said third fragment being removable from said base of said counterbore in the bottom of said guide tube and said fourth fragment being removable from the upper part of said flange of said guide tube, removing said first pin fragment and said third and fourth fragments from said guide tube, and thereafter securing said new split-pin assembly in said guide tube by said new nut with the flange of said new split pin engaging said base of said counterbore in the bottom of said flange of said guide tube.

4,756,068

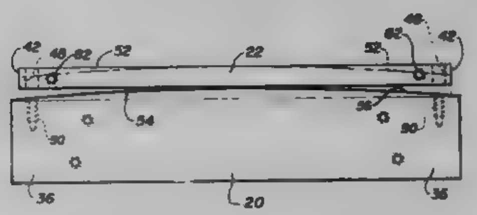
SHEARBAR ATTACHMENT AND ADJUSTMENT APPARATUS AND METHOD

John R. McClure, and T. William Waldrop, both of New Holland, Pa., assignors to New Holland Inc., New Holland, Pa.

Filed Apr. 13, 1987, Ser. No. 37,491

Int. Cl.⁴ B23P *11/00*

U.S. Cl. 29—434 9 Claims



1. In a forage harvester including a rotatable cutterhead, a shearbar having a cutting edge, and a stationary shearbar support member having a bowed upper surface, said cutterhead having a plurality of knives with cutting edges which pass in close proximity to said shearbar cutting edge upon rotation of said cutterhead in chopping crop material passing over said shearbar, a shearbar attachment and adjustment method comprising the steps of:
(a) attaching said shearbar to, and upon said bowed upper surface of, said support member at first locations on opposite end portions of said shearbar and outwardly from opposite sides of said cutterhead so as to permit movement of said shearbar relative to said support member toward and away from said cutterhead for adjusting the position of said shearbar cutting edge relative to said cutting edges of said cutterhead knives;
(b) applying clamping forces to said shearbar at said first locations which bend said shearbar into contact with said bowed upper surface of said support member along the length of said shearbar and, in turn, deform said upwardly-facing surface of said shearbar to a convex configuration and generate frictional forces between said shearbar and said support member being sufficient to resist movement of said shearbar toward and away from said cutterhead due to chopping forces imposed on said shearbar, said convex configuration of said upwardly-facing shearbar surface defining a corresponding convexity in said shearbar cutting edge such that, when said shearbar is disposed generally parallel with said cutterhead, opposite end edge portions of said shearbar cutting edge are disposed farther from said cutterhead than at an intermediate edge portion of said shearbar cutting edge, whereby a nonuniform clearance exists between said cutting edge of said shearbar and said cutting edges of said cutterhead knives as the latter pass said shearbar cutting edge;
(c) adjusting said shearbar by applying pulling forces thereon at second locations being spaced inwardly from said first locations and outwardly of said opposite sides of said cutterhead, said pulling forces being sufficient to overcome said resisting frictional forces and cause movement of said shearbar toward said cutterhead and concurrently bowing of said shearbar and said cutterhead-facing surface thereon at said second locations so as to displace said opposite end edge portions of said shearbar cutting edge more nearly at the same distance from said cutterhead as said intermediate edge portion thereof, whereby a more uniform clearance can be adjustably achieved between said cutting edge of said shearbar and said cutting edges of said cutterhead knives.

4,756,069

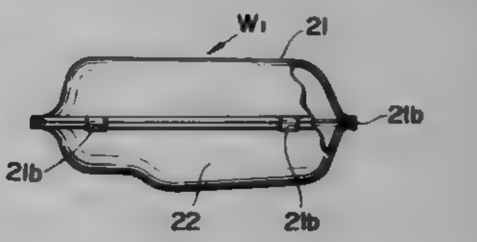
METHOD OF MAKING A TANK

[illegible], [illegible], Japan, assignor to Nissan Motor Company, Limited, Kanagawa, Japan

Continuation of Ser. No. [illegible], Jul. 15, 1985, abandoned, which is a continuation of Ser. No. 496,535, May 20, 1983, abandoned. This application Sep. 1, 1986, Ser. No. [illegible] Claims priority, application Japan, Jun. 4, 1982, 57-94720

Int. Cl.⁴ [illegible]

U.S. Cl. 29—463 3 Claims



1. A method of making a tank, comprising of:
pressing a sheet material to form a first half shell having a first flange along an entire outer periphery thereof and a plurality of first projections each extending outwardly from an outer peripheral edge of the first flange in a plane including the first flange;
bending said first projections so as to be directed perpendicular to said plane;
pressing a sheet material to form a second half shell having along an entire outer periphery thereof a second flange corresponding in shape to the first flange;
matching the first and second flanges so as to form a tank shape;
engaging said first projections with the second flange, thereby to fix provisionally the first and second flanges in a matched condition; and
seam-welding the first and second flanges to each other along the outer peripheries of said first and second flanges.

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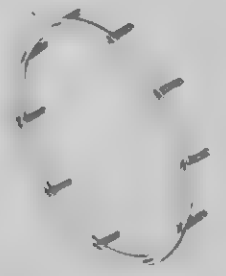
4,756,070
METHOD FOR MANUFACTURING SPRING ASSEMBLIES

Kazuaki Takeuchi, Ohita, Japan, assignor to Chuohhatsujo Kogyo Co., Ltd., Ohita, Japan
Filed Jul. 29, 1986, Ser. No. 891,504
Int. Cl.⁴ B21D *39/00;* **B23P** *11/00*
U.S. Cl. 29—515 **10 Claims**



1. A method for manufacturing spring assemblies comprising forming a plurality of holes at spaced-apart intervals along a narrow-width, elongate metal plate having side edges, said metal plate being substantially flat adjacent said holes such that there are not projections adjacent said holes projecting from the surface of said metal plate;

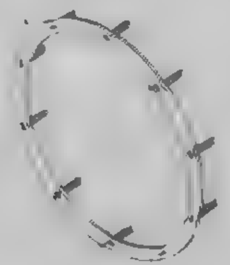
forming a groove on at least one side of each of said holes, said groove communicating with said hole and extending away from said hole in the elongated direction of said metal plate;

inserting an end of a helical spring into each of said holes, each holes having a cross-dimension perpendicular to the elongate direction of the metal plate slightly larger than the diameter of the end of the spring being inserted therethrough; and

compressing said side edges of said metal plate on opposite sides of said hole to collapse said holes and reduce the cross-dimension of each of said holes, whereby the end of the inserted spring and hole are fayed and the inserted spring end is thereby secured in said hole.

4,756,071
METHOD FOR MANUFACTURING SPRING ASSEMBLIES

Kazuaki Takeuchi, Ohita, Japan, assignor to Chuohhatsujo Kogyo Co., Ltd., Ohita, Japan
Filed Jul. 29, 1986, Ser. No. 891,501
Int. Cl.⁴ B21D *39/00;* **B23P** *11/00*
U.S. Cl. 29—515 **8 Claims**



1. A method for manufacturing spring assemblies for automotive automatic transmissions comprising:

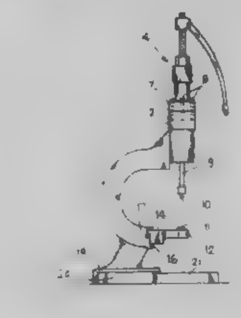
forming a plurality of holes at spaced-apart intervals along a narrow-width, elongate metal plate, said metal plate having side edges and a substantially flat surface adjacent said holes such that there are no projections projecting from the surface of said metal plate adjacent said holes;

inserting an end of a helical spring into each of said holes, each hole having a cross-dimension slightly larger than the diameter of the end of the spring being inserted therethrough; and

compressing said side edge of said metal plate in a direction perpendicular to the elongate direction to compress said metal plate about said holes to thereby collapse and reduce the cross-dimension of each of said holes, whereby the end of the inserted spring and hole are fayed and the inserted spring end is secured in said hole.

4,756,072
UNIVERSAL PRESS TO PROCESS AND/OR FOR THE APPLICATION OF SMALL ITEMS

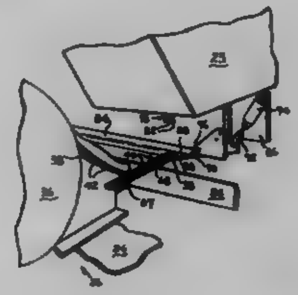
Pierino Falzoni, Cilavegna, Italy, assignor to Officina Meccanica Fratelli Falzoni s.r.l., Rome, Italy
Filed May 29, 1985, Ser. No. 738,946
Claims priority, application Italy, Jun. 21, 1984, 21539 A/84
Int. Cl.⁴ B23P *23/04*
U.S. Cl. 29—560 **1 Claim**



1. A universal press for stamping, drilling, die-punching, button-holing, riveting small items by means of a moving tool or a fixed tool comprising an horizontal base, a support structure affixed to said base and extending therefrom in a direction substantially perpendicular thereto, said support structure having a substantially C-shaped configuration and including two vertical arms, the first arm being closer to said base and having an end portion, said end portion having a vertical support guide, said support guide having a configuration, the second arm being the upper arm, said upper arm having an end portion, at least one carriage having an engagement portion having a configuration complementary to that of said support guide for mounting said carriage on said guide, means for arresting said carriage in any selected position along said guide; at least one fixed tool mounted on said carriage; at least one movable tool; means for mounting said movable tool on said end portion of said upper arm for movement away from and toward said fixed tool; said carriage having a side slit terminating in a cavity to adjust the distance between said fixed tool and said moving tool, wherein said base has a foot, said foot has at least two laterally open cavities; and further comprising at least two containers for small items, at least two vertical pins fixed to said base, said containers being pivoted on said pins and revolving about said pins, between a rest position in which said drawers are received in the interior of the foot of said base and a second position in which the drawers are located beneath the working axis of the fixed tool and the movable tool.

4,756,073
MACHINES FOR HANDLING ELECTRICAL COMPONENTS

Victor T. Hawkswell, Witham, England, assignor to USM Corporation, Farmington, Conn.
Filed May 22, 1986, Ser. No. 866,041
Claims priority, application United Kingdom, May 28, 1985, 8513296
Int. Cl.⁴ H01R *43/00*
U.S. Cl. 29—564.6 **6 Claims**



1. A machine for handling electrical or electronic components supplied at spaced intervals in pockets defined in a continuous carrying tape comprising:

means for horizontally feeding the carrying tape to present components contained in the pockets successively at an unloading position and to simultaneously horizontally advance the carrying tape portion including an empty pocket away from the unloading position,

means for unloading a component from a carrying tape pocket located at the unloading position,

means for transversely severing the carrying tape across the portion of the tape between successive pockets to separate a carrying tape portion having an empty pocket from the remainder of the carrying tape,

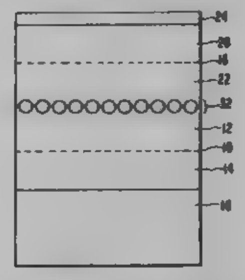
elongated duct means,

means for supporting said duct means so that it extends transversely of the carrying tape and so that the portion of the carrying tape to be severed will be located therein, and

means for blowing air through said duct means for carrying severed portions of the carrying tape horizontally along said duct means to the end thereof.

4,756,074
METHOD OF MAKING A HIGH CONDUCTANCE OHMIC JUNCTION FOR MONOLITHIC SEMICONDUCTOR DEVICES

Carol R. Lewis, Palo Alto, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.
Division of Ser. No. 645,181, Aug. 29, 1984, abandoned. This application Jan. 21, 1986, Ser. No. [illegible]
Int. Cl.⁴ H01L *31/18*
U.S. Cl. 437—2 **6 Claims**



1. A method of forming a monolithic cascade solar cell including sub-cells of different radiation converting bandgaps comprising the steps of:

forming a first radiation converting solar sub-cell having a first radiation converting bandgap on a substrate;

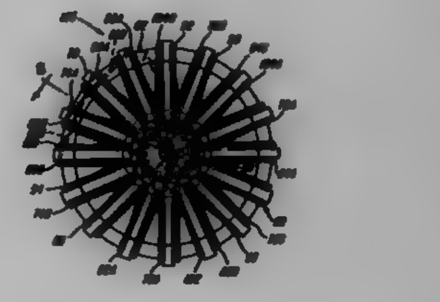
forming an interconnecting thin layer comprising bead-like bodies of high conductance metal over said first sub-cell, said layer being substantially transparent to wavelengths of radiation having frequency matching the bandgap of said first sub-cell;

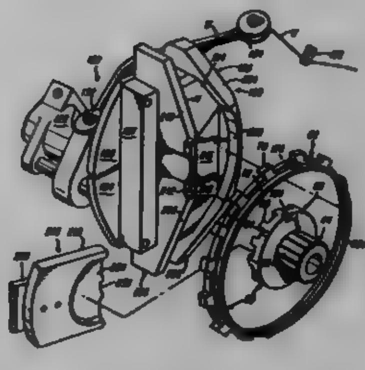
forming at least one more radiation converting solar sub-cell having a second radiation converting bandgap, said second radiation converting bandgap being different from said first radiation converting bandgap, over said interconnecting layer of metal; and

interconnecting said sub-cells in series.

4,756,075
METHOD AND APPARATUS FOR MANUFACTURING A PREFORM FOR A FLAT COIL DYNAMOELECTRIC DEVICE

Patrick A. Dolgas, Milford, Ohio, assignor to The Globe Tool and Engineering Company, Dayton, Ohio
Continuation of Ser. No. [illegible], Sep. 13, 1984, abandoned. This application Mar. 5, 1987, Ser. No. [illegible]
Int. Cl.⁴ H02K *15/00*
U.S. Cl. 29—596 **18 Claims**





1. A machine for manufacturing a preform of a dynamoelectric device having a preform frame comprising an inner frame structure having inner coil end turns retaining means and an outer frame structure having a central bore and having outer coil end turns retaining means, said frame structures being spaced apart and having a common axis, and said preform having a plurality of coils extending around said axis, said coils having outer end turns retained by said outer coil end turns retaining means and inner end turns retained by said inner coil end turns retaining means, said machine comprising:

preform clamp means holding said inner and said outer frame structures in a predetermined mutually relatively rotationally fixed relationship and in predetermined posi-

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tions wherein they are substantially mutually coaxial on a predetermined axis and said inner frame structure is located within said central bore of said outer frame structure;

a wire guide flier rotatable about a winding axis;

means for rotating said flier about said winding axis;

wire guide means for guiding wire exiting from said flier, when said flier is rotating, into engagement with both said inner coil end turns retaining means and said outer coil end turns retaining means and shielding other portions of said preform frame from being engaged by said wire so that a coil of wire is wound on said preform frame having sides spanning between said frame structures; and

means for rotating said clamp means about said predetermined axis so that additional coils of wire may be wound on said preform frame at different positions thereon.

4,756,076

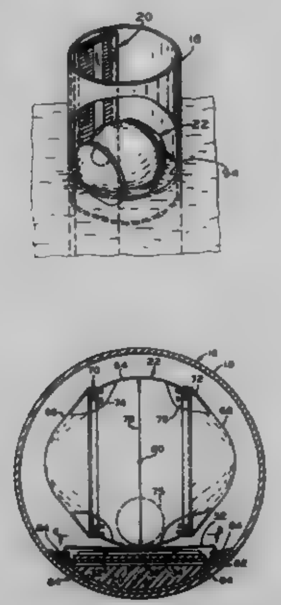
METHOD FOR MAKING A RESISTIVE LEVEL SENSOR

Jerry F. Dyben, Fort Wayne, Ind., and Stanley S. Walc, Rydal, Pa., assignors to Tokheim Corporation, Fort Wayne, Ind.

Division of Ser. No. 659,326, Oct. 10, 1984, Pat. No. 4,637,254. This application Oct. 22, 1986, Ser. No. 904,335

Int. Cl.⁴ H01C *17/02*

U.S. Cl. 29—621.1 4 Claims



1. The method of fabricating a variable resistance sensor having resistors carried by an elongated rigid support, comprising the steps of securing a flexible layer of conductive material to the surface of a sheet of flexible insulative aromatic polyimide material, securing said sheet to said support with said conductive material facing said resistors but spaced therefrom, folding opposite marginal portions of said sheet to provide straight parallel and spaced apart corner portions, securing said marginal portions to opposite sides of said support, and heating said sheet to an extent as causes it to locate in spaced relation from said resistors.

4,756,077

ASSEMBLY PLATFORM FOR AN EQUIPPING OF PRINTED CIRCUIT BOARDS

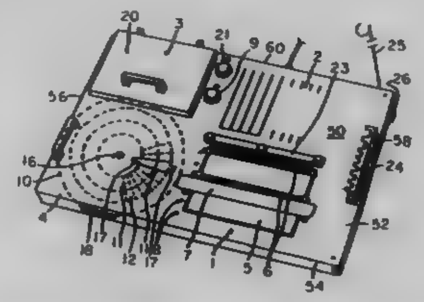
Marco Bianchi, Meilen, Switzerland, assignor to Kontakt-Systeme Inter AG, Engelberg, Switzerland

Filed Jan. 30, 1987, Ser. No. 8,773

Claims priority, application Fed. Rep. of Germany, Jan. 7, 1987, [illegible]

Int. Cl.⁴ B23P *19/00*

U.S. Cl. 29—740 9 Claims



1. An assembly platform for equipping printed circuit boards with surface mounted components, the assembly platform comprising

- a plate-shaped chassis having an upper surface and including a heatable working surface for receiving a circuit board, the upper surface having an opening therein;
- a component storage rotary carousel located adjacent the heatable working surface and below the upper surface of the chassis, the carousel having a plurality of component storage compartments, each storage compartment being alignable with the opening in the upper surface of the chassis for picking up and retrieving a component in the compartment, the opening in the upper surface of the chassis being sized and positioned to cover all other compartments when a predetermined compartment is aligned with the opening; and
- a closable heating chamber for pre-baking solder paste and curing surface mounting adhesives.

4,756,078

INTEGRATED CIRCUIT PACKAGE EXTRACTION TOOL

Michael J. Dougherty, Lansdale, and Robert E. MacMullin, Exton, both of Pa., assignors to Microdot Inc., Darien, Conn.

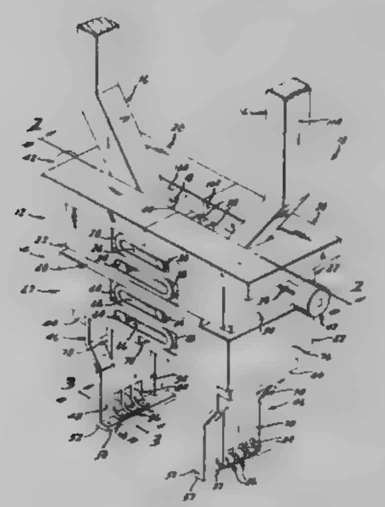
Filed May 4, 1987, Ser. No. 45,523

Int. Cl.⁴ [illegible] *13/04*

U.S. Cl. 29—764 6 Claims

1. A tool for the extraction of a coplanar array of integrated circuit pins from a parallel coplanar array of pin sockets comprising

- a pair of rotatable cams, each of said cams having lobe surfaces engageable with said pins and socket arrays, respectfully;
- means for positioning the lobe surfaces of said cams between said pin array and said socket array; and
- means for rotating said cams by simultaneously displacing the axis of rotation of each of said cams towards said socket array in the direction normal to the plane of engagement between said pin array and said socket array, whereby one of the lobe surfaces is pivoted against said socket array to produce said rotation, and whereby said pin array is separated from said socket array.



4,756,079

SLIDE FASTENER CLOSING APPARATUS

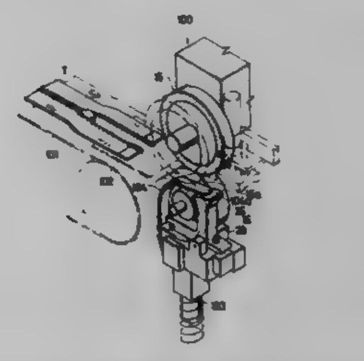
Akiyoshi Kondo, Uozu, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Apr. 15, 1987, Ser. No. 38,664

Claims priority, application Japan, Apr. 15, 1986, 61-[illegible][U]

Int. Cl.⁴ A41H *37/06*

U.S. Cl. 29—768 4 Claims



1. An apparatus for automatically closing a slide fastener having a pair of stringers and a slider, which apparatus comprises:

- (a) an upper feed roller and a lower feed roller driving the slide fastener therebetween and mounted on their respective shafts extending at right angles across a horizontal path of travel of the slide fastener, at least one of said rollers having a peripheral guide groove for unobstructed passage of the slide fastener;
- (b) a drive means for driving one of said rollers in either direction;
- (c) a control means for controlling said drive means for its direction of rotation;
- (d) an arrester means disposed in said path of travel and engageable with the slider for arresting the slider to thereby move the latter relative to the stringers;

said arrester means bieng pivotable and spring-biased normally in the direction of forward travel of the slide fastener; and

further including a protective means disposed within said guide groove and extending over said arrester means.

4,756,080

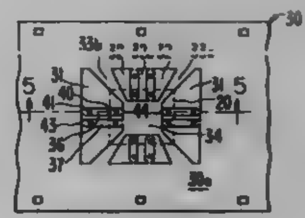
METAL FOIL SEMICONDUCTOR INTERCONNECTION METHOD

C. Arthur Thorp, Jr., Santa Clara, and Richard F. Cooley, Campbell, both of Calif., assignors to American Microsystems, Inc., Santa Clara, Calif.

Filed Jan. 27, 1986, Ser. No. 822,712

Int. Cl.⁴ [illegible]

U.S. Cl. 29—827 10 Claims



5. A method of interconnecting an integrated circuit die having die contact pads thereon to a set of external leads having connector leads extending therefrom comprising:

- providing a single layer conductive foil beam frame having interconnected beam lengths thereon, each beam length being separable at each end by breakaway sections and wherein each beam length extends from an inner position to an outer position, said inner position being located to overlie peripheral edges of a juxtaposed integrated circuit die;
- positioning said integrated circuit die overlapping an inner portion of said beam frame with said die contact pads in registration to inner portions of said beam lengths;
- attaching respective ones of said die contact pads to ones of said inner portions of said beam lengths to form a subassembly;
- providing a set of external leads having an interior aperture and a series of conductive fingers extending outwardly from said aperture;
- positioning said subassembly in registration to said interior aperture with an outer portion of said beam frame aligned with inner portions of said series of conductive fingers;
- attaching ones of said inner portions of said series of conductive fingers to aligned ones of said outer portions of said beam lengths: and
- simultaneously removing all of said beam frame away from said set of external leads except for said beam lengths attached between said die contact pads and said inner portions of said series of conductive fingers by breaking away said breakaway sections and forming an interconnected assembly.

4,756,081

SOLID STATE DEVICE PACKAGE MOUNTING METHOD

Paul E. Penn, Indianapolis, Ind., assignor to Dart Controls, Inc., Zionsville, Ind.

Filed Aug. 22, 1985, Ser. No. 768,318

Int. Cl.⁴ [illegible]

U.S. Cl. 29—832 10 Claims

1. A method for mounting on a heat sink a solid state device package housing a solid state device having multiple electrical terminals, the package having an electrically conductive, heat dissipating portion which is common with one of the electrical terminals and an electrically insulative portion, the electrically

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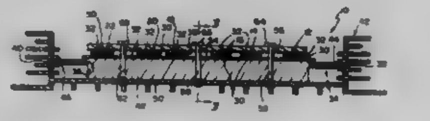
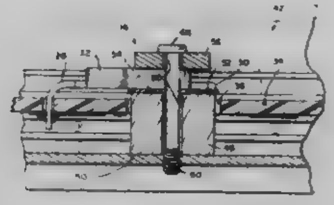
conductive and heat dissipating portion including an opening therethrough intended to be used in mounting the device to a heat sink, the method comprising the steps of providing a board for facilitating contact to the device terminals, providing an opening through the board adjacent the device mounting location, orienting the device package so that the heat dissipating portion of the device package extends into alignment with the opening, mounting the board from the heat sink, providing a first bar of heat conductive material, orienting the first bar in the opening between the device package and the heat sink, interposing an electrically insulative and thermally conductive material between the first bar and the device package, providing a second bar of heat conductive material, orienting the second bar on the electrically insulative portion of the device package, providing aligned passageways through the second bar, the electrically insulative and thermally conductive material, the first bar and the heat sink, positioning fastening means in the aligned passageways but not so that the fastening means extends into the opening in the electrically conductive and heat dissipating portion of the device package, and adjusting the fastening means to clamp the device package in position in the opening between the electrically insulative and thermally conductive material and the second bar.





4,756,082

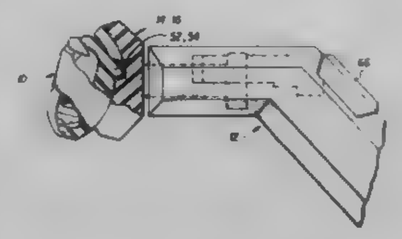
RAZOR BLADE ASSEMBLY AND HANDLE THEREFOR

Domenic V. Apprille, Jr., 70 Decatur St., Arlington, Mass. 02174

Filed May 12, 1987, Ser. No. 48,935

Int. Cl.^{4} [illegible]

U.S. Cl. 30—89 4 Claims



1. A razor and blade assembly comprising a razor handle assembly having a bent handle portion and a pair of arms pivoted to and extending from said handle portion, each of said arms having thereon a rocker bearing shell, each of said rocker bearing shells having on its bearing surface a flat walled cut out surface, the walls and bottoms of which are at right angles to each other defining a projection movement limiting slot in the bearing shell surface, and a blade assembly having curved under surfaces complementarily engagable with said rocker bearing shells and their cut out surfaces, said blade assembly being rockable on and relative to said rocker bearing shell cut out surfaces, parallel arcuate struts on the curved under surface of each blade assembly, at least one projection upstanding from one of said struts positioned for entry into the cut out recesses of said bearing shells carried by said handle, said projection movement limiting slots in said bearing shell surfaces and said projections on each of said arcuate struts being so positioned as to permit the projections on said struts to enter said slots only when the razor blade assembly is positioned in the rocker bearing shells on the razor handle assembly in a shaving ready position, said projections being of such height as to prevent coupling of said blade assembly to the handle assembly when said handle assembly is positioned relative to the blade assembly so that said projections do not enter the slots in said rocker bearing shells.

4,756,083

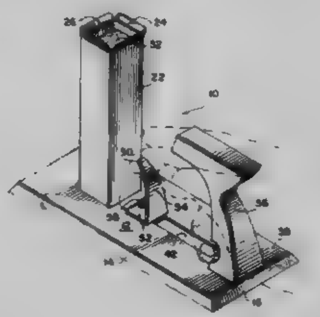
SLICING AND STORING DEVICE

Modesto C. Alonso, 25 Manor Dr.-12N, Newark, N.J. 07106

Filed May 19, 1987, Ser. No. 51,389

Int. Cl.^{4} A21C *5/00*

U.S. Cl. 30—115 11 Claims



1. A slicing and storing device comprising a base, an opening formed in said base, a tubular member extending upwardly from said opening, said tubular member being adapted to receive a food product to be sliced, a handle member secured to said base, a trigger member provided on said base generally between said handle member and said tubular member, said trigger member being adapted to be grasped by a user and manually drawn toward said handle member, a slice holder plate operatively connected to said trigger member for movement therewith when said trigger member is drawn toward said handle member, a slot formed in said slice holder plate, said slot being adapted to be generally aligned with said opening in said base when said slicing and storing device is in a normal position, a recessed support surface extending across said slot in said slice holder plate, said food product being adapted to descend within said tubular member such that a portion of said food product projects through said aligned opening and said slot and is supported on said support surface, a stop member provided on said base and projecting downwardly through said slot in said slice holder plate, a cutting member located generally opposite said stop member along an edge of said slot, spring means extending between said slice holder plate and said base, said slice holder plate being adapted for sliding movement with respect to said base when said trigger member is manually drawn toward said handle member such that said cutting member is drawn through said projecting portion of food until said cutting member contacts said stop member so as to produce a slice of said food of uniform thickness, said spring means is placed under tension, said food support surface is moved out of alignment with said opening such that said slice is free to fall away from said device, and an unslotted portion of said slice holder plate underlies said opening so as to prevent said food product from descending within said tubular member, said slice holder plate being adapted to automatically return to said normal position under the restoring force of said spring means when said trigger member is released.

4,756,084

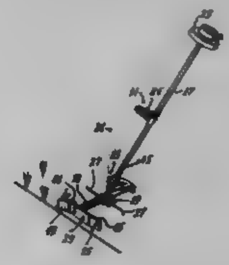
GUARD FOR VEGETATION CUTTING DEVICE

Lawrence H. Merkle, 20212 Big Ben Ln., Huntington Beach, Calif. [illegible]

Filed Nov. 3, 1986, Ser. No. [illegible]

Int. Cl.^{4} [illegible]

U.S. Cl. 30—276 10 Claims



1. In a cutting device for vegetation such as grass, weeds and the like which includes a supporting structure, a rotary cutting head adapted to have at least one strand-like cutting element extending from the cutting head, means for mounting the cutting head on the supporting structure for rotation about a rotational axis, a motor on the supporting structure for rotating the cutting head and wherein the supporting structure includes an elongated handle to permit the cutting device to be manually manipulated so that the cutting element can cut the vegetation, the improvement comprising:

an elongated guard;
an arm coupled to said guard;
means for coupling the arm to the supporting structure with the guard being spaced radially from the rotational axis to allow the cutting element to be rotated by the cutting head whereby the guard can protect objects from being damaged by the cutting element;
the coupling means removably couples the arm to the handle, said arm including means for varying the length of said arm so that the radial spacing between the rotational axis and the guard can be adjusted; and
means for allowing the guard to be pivoted about a pivot axis which is generally transverse to said rotational axis and means for fixing the guard in any one of a plurality of positions about said pivot axis.

4,756,085

DEVICE FOR THE CUTTING OF WALLPAPER

Elias Lebouis, Kürfürstenstrasse 16, 8034 Germering, Fed. Rep. of Germany

PCT No. PCT/DE86/00076, § 371 Date Oct. 22, 1986, § 102(e) Date Oct. 22, 1986, PCT Pub. No. WO86/05138, PCT Pub. Date Sep. 12, 1986

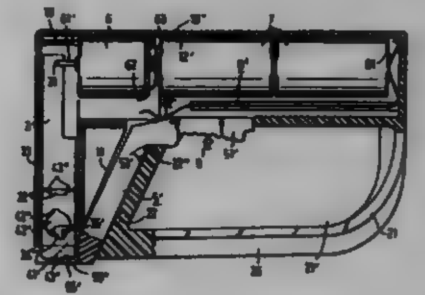
PCT Filed Feb. 20, 1986, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1985, [illegible]

Int. Cl.^{4} B26B *7/00, 29/02*

U.S. Cl. 30—272 A 17 Claims

1. A device for cutting of wallpaper, comprising
a housing having a chamber therein,
a motor within said chamber,
a drive shaft connected to said motor for carrying out eccentric rotary motion,
a transfer part connected to said drive shaft for converting the eccentric rotary motion of said drive shaft to reciprocating motion,
a first knife mounted on said transfer part for carrying out reciprocating motion,
a second knife mounted on said housing and cooperating with said first knife for cutting said wallpaper, and
a trigger part mounted in said housing and comprising cover means and actuation means, said trigger part being shiftable between first and second positions, said trigger part covering a cutting portion of said first and second knives when in said first position, said trigger part exposing said cutting portion of said first and second knives and actuating said motor to cut said wallpaper when in said second position.



4,756,086

PEN PRINTER

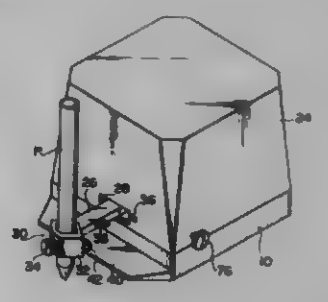
Hiroshi Yajima, and Masaki Hayashi, both of Tokyo, Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed May 12, 1986, Ser. No. [illegible]

Claims priority, application Japan, May 16, 1985, [illegible]; May 16, 1985, [illegible]; May 16, 1985, [illegible]

Int. Cl.^{4} [illegible]

U.S. Cl. 33—18.1 22 Claims



1. A pen printer for performing drawing with a detachably held pen; comprising:
a pen holder for detachably holding the pen;
a pen holder operation mechanism for moving said pen holder between a pen attaching position, where the pen is attached to or detached from said pen holder, and a home position, where drawing is started or ended, and for moving said pen holder from the home position for drawing a desired sign or figure according to a pattern corresponding to the desired sign or figure and causing said pen holder to return to the home position;
a support member for supporting said pen holder operation mechanism to be movable in all directions;
a pen seat, mounted on said support member, for receiving a tip of the pen held by said pen holder;
pen attaching position reference point display means, mounted on said pen seat, for displaying a pen attaching position reference point for the pen tip of the pen held by said pen holder; and
pen holder operation mechanism moving means for moving said pen holder operation mechanism in all directions so as to align the pen tip of the pen held by said pen holder in

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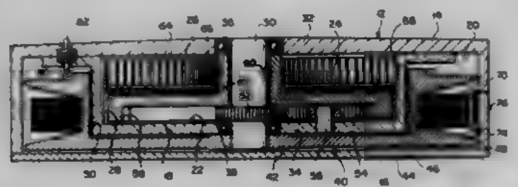
the pen attaching position with the pen attaching position reference position.

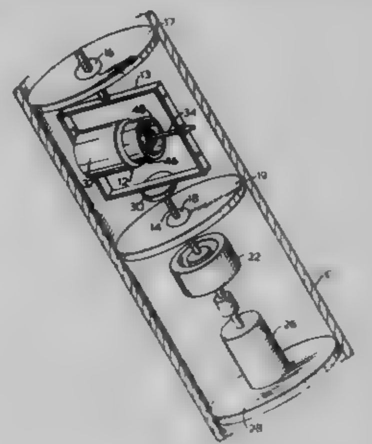
4,756,087
COMPACT MEASURING DEVICE
Peter Sing, 43 Donny Brook Rd., Scarsdale, N.Y. 10583
Filed Jan. 30, 1987, Ser. No. 9,365
Int. Cl.⁴ G01B *3/10*
U.S. Cl. 33—138 11 Claims



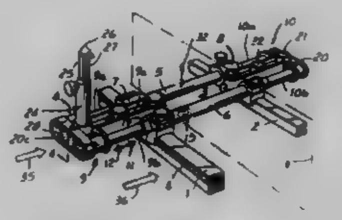
1. Compact measuring device which comprises:
tape means up to 400 feet in length and of a width in the range of 2–10 mm., said tape having suitable measurement scale indicia along its length;
a housing for containing the measuring device, said housing comprising:
an outer cup-shaped housing member;
an inner cup-shaped housing member having a circumferential flange extending outwardly from its open end and positioned oppositely to and within said outer housing member, said flange being affixed to said outer housing member on its base wall, said opposed housing members thereby forming an inner chamber therebetween; and
a cover to be positioned on the open end of said outer housing member to enclose the compact measuring device;
a shaft centrally disposed, transversely positioned and rotatably journalled in both said members of said housing, said shaft extending through said inner chamber;
cup-shaped spool means for said tape means to be unwound and rewound thereon, said spool means being mounted on and for rotation with said shaft, being positioned adjacent said inner housing member outside said inner chamber and having its tape-storing end wall portion offset with respect to its hub mounted on said shaft so that said offset end wall portion concentrically overlies and substantially surrounds said inner housing member and substantially occupies the space between the circumferential end wall of said inner housing member and the circumferential end wall of said outer housing member; and
means for returning and rewinding said tape means on said spool means, said return and rewind means being mounted operatively on said shaft and being positioned within and substantially occupying said inner chamber.

4,756,088
INSTRUMENTS FOR MONITORING THE DIRECTION OF A BOREHOLE
Anthony W. Russell, Aberdeenshire, Scotland, and Michael K. Russell, Cheltenham, United Kingdom, assignors to NL Industries, Inc., New York, N.Y.
Filed Aug. 20, 1982, Ser. No. 410,095
Claims priority, application United Kingdom, Aug. 20, 1981, 8125409; Aug. 4, 1982, 8222437
Int. Cl.⁴ G01C *9/06, 19/00*
U.S. Cl. 33—312 7 Claims

1. An instrument for monitoring the direction of a borehole, comprising an elongate casing having its longitudinal axis coincident, in use, with the axis of the borehole, an outer gimbal pivotally mounted within the casing with its pivot axis coincident with the longitudinal axis thereof, a rate gyroscope unit mounted in the outer gimbal and adapted to provide outputs indicative of the rates of rotation about the outer gimbal axis and an axis transverse to the outer gimbal axis, torquing means for applying a torque to the outer gimbal, first actuating means for actuating the torquing means when the instrument is disposed at the mouth of the borehole so as to pivot the outer gimbal about its axis, whereby, in use, the alignment of said transverse axis relative to an East/West direction is determined from the rate of rotation about said transverse axis sensed by the gyroscope unit, second actuating means for actuating the torquing means in response to the rate of rotation about the outer gimbal axis sensed by the gyroscope unit as the instrument is moved along the borehole so as to stabilize the outer gimbal about its axis, and a gravity sensor unit for sensing two components of gravity in two transverse directions, means for determining the high-side angle of the instrument as it is moved along the borehole from the sensed components of gravity, and third actuating means for actuating the torquing means in response to the rate of rotation about said transverse axis sensed by the gyroscope unit as the instrument is moved along the borehole at high inclination angles so as to maintain the high-side angle zero.

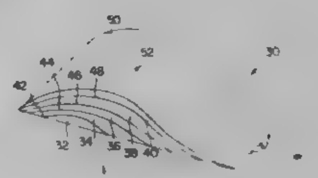


4,756,089
LINEAR DISPLACEMENT MEASURING DEVICE
Lennart Danielsson, III, Stockholm, Sweden, assignor to Car-O-Liner Company, Wixom, Mich.
Filed Oct. 22, 1987, Ser. No. 112,503
Int. Cl.⁴ G01B *5/25*
U.S. Cl. 33—503 11 Claims



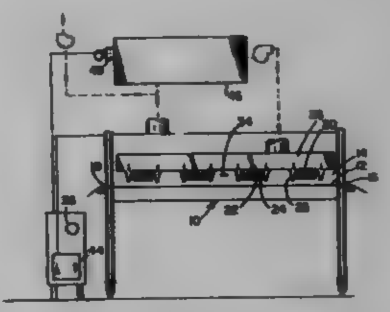
2. An apparatus for measuring along three orthognal axes comprising:
a pair of elongate beams spaced apart and in parallel and fixed relationship to each other,
a carriage slidably carried by said beams,
a first calibrated measuring scale carried by at least one of said beams and extending longitudinally thereof for measuring displacement along such one beam,
at least one slide carried by said carriage and constructed and arranged to be extended and retracted with respect to said carriage along a rectilinear path perpendicular to the longitudinal axis of such one beam,
a second calibrated measuring scale for measuring displacement of said slide which is elongate, inextensible, at least somewhat flexible, and operably connected to said carriage,
a holder carried by said slide, slidably receiving a portion of said second scale, and guiding portions of said second scale along a generally U-shaped path with at least part of the central portion thereof lying both parallel to the longitudinal axis of such one beam and perpendicular to the rectilinear path of travel of said slide;
a probe carried by said slide, with its longitudinal axis extending perpendicular to both the longitudinal axis of said one beam and the rectilinear path of travel of said slide,
a third calibrated measuring scale extending longitudinally of said probe for measuring longitudinal displacement of said probe, and
all three of said scales constructed and arranged such that they can be viewed and read from the same location outboard of the free end of said slide and in substantially the same sighting direction.

4,756,090
ORTHOPEDIC PILLOW AND SIZING KIT THEREFOR
John Pedrow, 14429 Rte. 30, North Huntingdon, Pa. 15642
Filed Aug. 12, 1987, Ser. No. 84,674
Int. Cl.⁴ A47G *9/00*
U.S. Cl. 33—512 17 Claims



1. A sizing kit for determining an appropriate size of orthopedic pillow for use by a patient, said orthopedic pillow comprising a block comprising a deformable material, said block having a substantially quadrilateral perimeter when viewed in plan; an upper surface of said block having a substantially airfoil-shaped reverse curved surface when said block is viewed in elevation; and a groove provided in said upper surface, said groove being sized and adapted to accommodate the cervical vertebrae of a user of said orthopedic pillow,
said sizing kit comprising:
an ordered multiplicity of members, each of said members having a substantially quadrilateral perimeter when viewed in plan, each of said substantially quadrilateral perimeters of said multiplicity of members having a substantially common first characterizing dimension and a second characterizing dimension, said second characterizing dimensions increasing from ordered member to ordered member such that the number of distinct second characterizing dimensions corresponds to the number of said multiplicity of members;
each of said members having an upper surface which comprises a substantially airfoil-shaped reverse curved surface when said members are viewed in elevation; and
each of said ordered multiplicity of members, other than a first member of said ordered multiplicity, having a lower surface which substantially corresponds to said substantially airfoilshaped reverse curved upper surface of the preceding member in said ordered multiplicity;
whereby said ordered multiplicity of members may be stacked one upon the other according to order to produce a compact and therefore readily storable package.

4,756,091
HYBRID HIGH-VELOCITY HEATED AIR/INFRA-RED DRYING OVEN
Herbert Von Durand, 270 Goffle Hill Rd., Hawthorne, N.J. 07506
Filed Jan. 23, 1987, Ser. No. 66,117
Int. Cl.⁴ F26B *3/30*
U.S. Cl. 34—4 14 Claims



1. A hybrid oven for the drying of a coating on a continuous web comprising, in combination:
a chamber;
plenum means for collecting and delivering heated air at high velocity adjacent said chamber;
a plurality of air impingement nozzle interconnecting said plenum means and said chamber; directing heating air from the plenum means to the coated continuous web being dried; said air nozzles being disposed at predetermined intervals along the chamber;
one or more controllable infra-red heaters medially disposed between said air nozzles, comprising, in turn;
at least one infra-red element normally operable within a given voltage range;
thermocouple means for providing a control signal relative to the element temperature, said thermocouple means embedded within the outer sheating of said infra-red element; and,
infra-red controller means for increasing and decreasing power to said infra-red element, said infra-red controller means capable of providing voltages at levels substantially higher than the upper limit of the rated voltage range for said infra-red element;
whereby, upon said thermal sensor means sensing that said infra-red element is operating at least than the predetermined temperature and is providing less than required infra-red output, the infra-red controller means can provide higher voltages until the predetermined infra-red output is reached.

4,756,092
METHOD AND APPARATUS FOR DRYING SLUDGE
Charles M. Anderson, deceased, late of Dillard, Ga. (by Joyce A. Anderson, executrix), and Wayne Anderson, Marietta, Ga., assignors to Habersham Environmental Products, Ga.
Filed Sep. 10, 1986, Ser. No. 905,921
Int. Cl.⁴ F26B [illegible]
U.S. Cl. 34—17 21 Claims

1. An apparatus for drying waste materials including a liquid, comprising:
a plate member having an upper planar surface;
a screen comprising a wall, said wall defining a hole extending through said screen, said screen being in sliding contact with said upper planar surface of said plate member such that said wall and said planar surface combine to define an upwardly disposed cavity to receive waste;
means for disposing said waste into said cavity;
means for advancing said screen and the hole therein in a path along said upper planar surface such that a portion of

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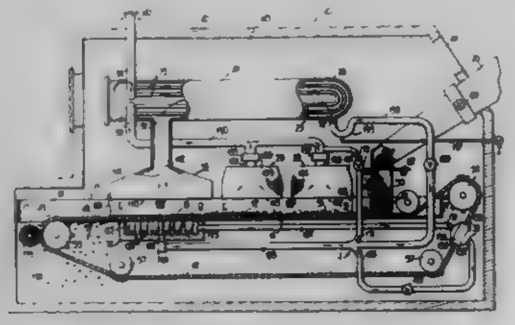
said waste received in the cavity is dragged across said plate member; and



means for heating said plate member such that said liquid is separated from said waste by evaporation.

4,754,893
APPARATUS FOR HEAT EXCHANGE BETWEEN GAS AND FINE-GRAINED MATERIAL

Otto Heinemann, Ennigerloh, and Heinz-Herbert Schmits, Rheda Wiedenbrück, both of Fed. Rep. of Germany, assignors to Krupp Polysius AG, Beckum, Fed. Rep. of Germany

Continuation of Ser. No. 794,711, Nov. 4, 1985, abandoned. This application Apr. 24, 1987, Ser. No. 42,160

Claims priority, application Fed. Rep. of Germany, Nov. 23, 1984, 3442504

Int. Cl.⁴ F26B *17/10*

U.S. Cl. 34—57 R **13 Claims**

1. Apparatus for heat exchange between gas and fine-grained material, comprising:

(a) a plurality of separators arranged one above another in a stack to enable material to pass by gravity from an upper separator into an adjacent lower separator;

(b) each separator having a cyclone-like upper part and a downwardly tapering, funnel-shaped lower part;

(c) each cyclone-like upper part having a straight line axis at an angle to the vertical and each separator having its cyclone-like upper part circumferentially offset at approximately 90° from the cyclone-like upper part of each adjacent separator;

(d) each funnel-shaped lower part having a substantially vertical, straight line axis from end to end intersecting and forming with the axis of the cyclone-like upper part an obtuse angle resulting in each separator's having a bent central axis, the funnel-shaped lower part being formed over its entire height substantially as a surface of revolution about its axis and being joined at its larger upper end with the lower periphery of the cyclone-like upper part as a continuation thereof;

(e) a gas pipe inclined relative to the vertical and extending between the cyclone-like upper part of each pair of adjacent separators in a substantially straight line, each such gas pipe extending from an exhaust outlet projecting centrally from the upper face of the next lower cyclone-like part in a substantially straight line to a supply opening communicating tangentially into the side of the next upper cyclone-like part for supply of gas thereto, the axial depth of each cyclone-like upper part being substantially equal to the corresponding transverse dimension of the gas pipe at its supply end opening therein, and the exhaust outlet end of each gas pipe leading from each cyclone-like upper part commencing along the control axis of the next lower cyclone-like upper part at a point along said axis within the transverse extent of the associated gas supply opening as projected along that axis, whereby maximum axial compactness of each cyclone-upper part is achieved; and

(f) a material discharge pipe connected to and coaxial with each funnel-shaped lower part and opening into the gas pipe leading to the next adjacent below.

4,754,894
SURFACE MOUNTABLE AIR TOWEL

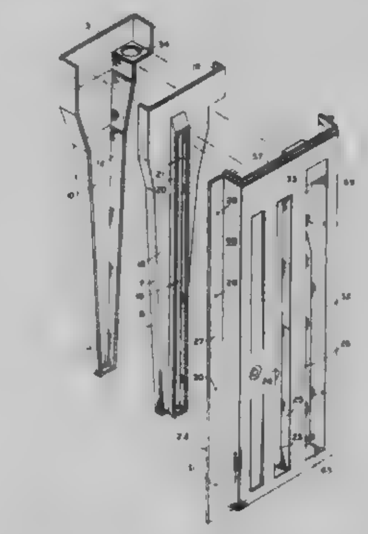
Jasper C. Houck, Jr., Oklahoma City, Okla., assignor to Glenn Melvan Houck, Oklahoma City, Okla.

Continuation-in-part of Ser. No. 873,546, Jun. 12, 1986, Pat. No. 4,685,222, which is a continuation-in-part of Ser. No. 666,674, Oct. 31, 1984, Pat. No. 4,594,797. This application Jun. 9, 1987, Ser. No. 60,492

The portion of the term of this patent subsequent to Jun. 17, 2003, has been disclaimed.

Int. Cl.⁴ F26B *19/00*

U.S. Cl. 34—225 **21 Claims**



1. An apparatus for providing drying air which is mountable on a surface, comprising:

(a) means for providing controlled temperature air;

(b) a chamber having first and second ends and having a front and a back, wherein said first end is in communication with said means for providing air, said chamber having an increasingly diminishing cross section from said first end to said second end, said chamber being further provided with an elongated passageway on said front communicating with exterior drying areas, said passageway having a uniform width along a longitudinal length, whereby air departing the chamber through the passageway has a generally uniform velocity along the length of the passageway; and

(c) attachment means for attaching said apparatus to a mounting surface, whereby a device for providing drying air is provided which is mountable upon a desired surface.

4,754,895
FOOTWARMER FOR SHOE

Nikola Lakic, 73-355 Guadalupe Ave. #M, Palm Desert, Calif. 92260

Filed Jan. 23, 1986, Ser. No. 877,503

Int. Cl.⁴ A43B *7/02, 13/28, 21/32*

U.S. Cl. 36—2.6 **20 Claims**

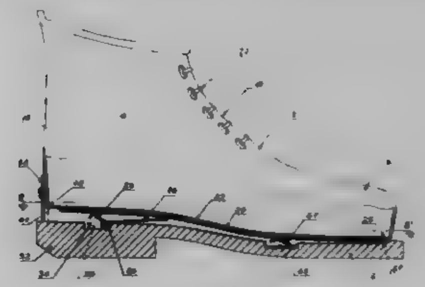
1. A foot warmer for a shoe which comprises:

a. a first, upper sole plate within said shoe and pivotally secured to the toe end of the sole of said shoe;

b. a second, lower sole plate mounted within said shoe and beneath said upper sole plate and in substantial longitudinal and lateral coextensive, sliding frictional contact with the undersurface thereof;

c. pivotal support means including lever arm means pivotally engaged between said lower sole plate and the sole of said shoe, and located at the rear of said shoe; and

d. resilient lift means secured to said pivotal support means to resiliently bias said lower and upper sole plates upwardly, against the applied weight of the wearer of the shoe, whereby said lower sole plate is caused to move in bearing frictional contact against the undersurface of said upper sole plate, generating heat, when said upper and lower sole plates are depressed and released.



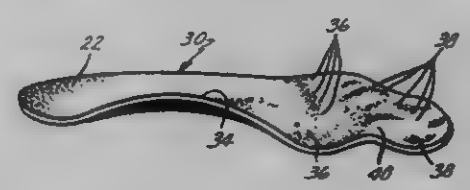
4,754,896
FOOTWEAR INSOLE

Grant C. Meyer, 3096 Highgate Rd., Muskegon, Mich. 49441

Division of Ser. No. 803,082, Nov. 27, 1985. This application Nov. 14, 1986, Ser. No. [illegible]

Int. Cl.⁴ A43B *13/40, 13/38*

U.S. Cl. 36—44 **25 Claims**



1. A custom molded insole for supporting the foot in a ski boot or other footwear comprising a thin, formed blank of semi-rigid, bendable, resilient material molded to the contour of the plantar surface/sole of a human foot, said formed blank extending along the full length and width of the foot and having a plurality of contoured portions on both its upper and lower surfaces closely corresponding to the shape of various areas of the plantar surface/sole of the foot including a heel cup, longitudinal arch, transverse arch, relief areas for the metatarsal heads, phalanx grooves and cups and a toe crest between the metatarsal head relief areas and phalanx toe grooves and cups; and contoured portions on said lower insole surface forming a four-point contact of said insole with a flat surface beneath at least said heel cup, the first metatarsal head relief area, at least one of said fourth and fifth metatarsal head relief areas and the great toe cup whereby the foot is firmly and stably supported by said four-point contact and forces are immediately and precisely transferred from the foot, through the molded insole to the boot or footwear when the insole is mounted therein.

4,754,897
ADJUSTABLE HEEL PROTECTOR FOR LADIES SHOES

Clarence C. Sanders, P.O. Box 84127, Los Angeles, Calif. 90073

Filed Aug. 17, 1987, Ser. No. 85,562

Int. Cl.⁴ A43B *23/30*

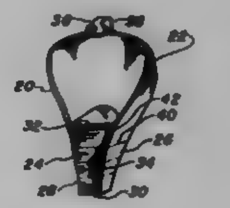
U.S. Cl. 36—72 B **5 Claims**

1. An adjustable heel protector for ladies shoes to be used while driving a motorized vehicle comprising;

(a) a body having an upper, as well as a front and rear heel portion, composed of relatively resilient material characterized by a shape conforming to a ladies shoe with the upper portion juxtapositioned over the shoe counter and the heel portions completely enclosing the outside of the shoe heel with the exception of the bottom which is in contact with the surface normally walked upon said body so configured as to define mating overlapping contiguous surfaces on the front heel portion nearest to the front of a shoe allowing the body to be adjusted in size over the heel by the amount of overlap present, the entire body formed in a tapered radial shape with the upper portion convexly elongated and angular corners on the front heel portion,

(b) a tab of annealed metal affixed permanently to the upper portion of said body and configured in such a manner as to be folded downward to define a hook over the counter of ones shoe holding the protector in place upon the shoe when worn, facilitating attachment with the heel portion of the shoe where the tab located on the upper portion of the protector grips the shoe in a clamplike fashion therebetween, and,

(c) pressure sensitive adhesive disposed on the mating overlapping surfaces of said front heel portion allowing the shape of the protector to conform exactly to the configuration of the heel of the shoe upon which it embraces by attaching the overlapping surfaces in a permanent fashion after over the heel forming has been accomplished using the shoe as a pattern.



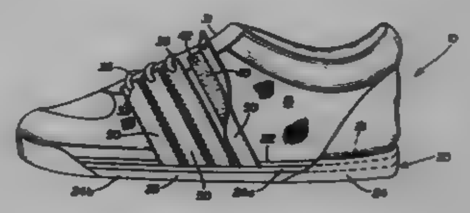
4,754,898
ATHLETIC SHOE

Joseph F. Boggia, Ponte Vedra, Fla., assignor to GenCorp Inc., Akron, Ohio

Filed Jan. 21, 1987, Ser. No. 5,680

Int. Cl.⁴ A43B *1/00, 23/25*

U.S. Cl. 36—114 **22 Claims**



1. An athletic shoe, comprising:

a laminated sole and an upper, said laminated sole comprising at least a midsole and an outersole,

a lace area, said lace area residing on said upper,

one or more flexible inextensible strips, said strip having a lace end and a sole end, said strip residing on said upper, said lace end of said strip attached to said lace area and said sole end of said strip extending into said laminated sole at least 45 percent of the distance from the outer edge of said laminated sole to the center axis of said sole laminate and attached thereto so that lateral and forward stability is imparted to the shoe.

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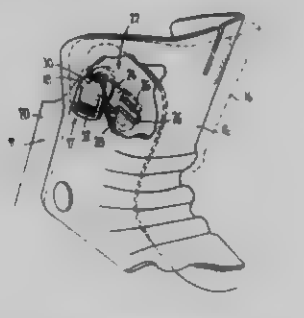
4,756,099
SKI BOOT

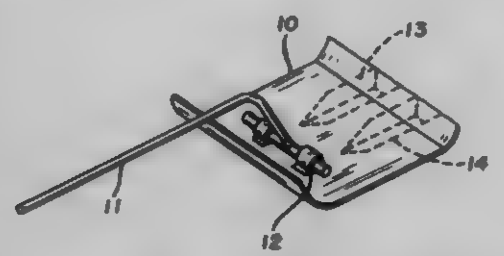
Klaus Walkhoff, Kreuzlingen, Switzerland, assignor to Raichle Sportschuh AG, Kreuzlingen, Switzerland
Filed Feb. 2, 1987, Ser. No. 9,800
Claims priority, application Switzerland, Jan. 31, 1986, 372/86; Jan. 12, 1986, 2308/86
Int. Cl.⁴ A43B *5/04*
U.S. Cl. 36—120 18 Claims



1. A ski boot having a shell comprising:
a sole;
a shank coupled to said sole;
a tongue deflectable relative to said shank in a leaning forward direction under stress in the lengthwise direction of the boot; and
means for limiting the distance to be travelled by said tongue, said limiting means operatively connecting said tongue and shank, and said limiting means having at least one stop.

4,756,100
CROSS COUNTRY SKI TRACK GROOMING DEVICE

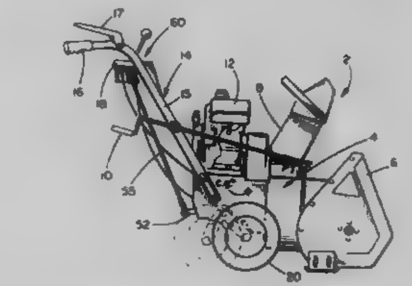
Thomas R. Holden, Rte. 1, Box 112, Le Center, Minn. 56057
Filed Jul. 13, 1987, Ser. No. 72,750
Int. Cl.⁴ E01C *19/22*
U.S. Cl. 37—220 12 Claims



1. In a cross country ski track grooming device comprising
(A) a track sled adapted to be towed by a vehicle in the direction of the track, and
(B) a pair of parallel spaced apart tracking elements on the underside of the sled and oriented in the direction of the track, each of said track elements:
(1) being elongated and trapezoidal in cross section with the broad base being rigidly secured to the underside of the sled,
(2) having a height equal to the desired depth of ski track, and
(3) being wedge shaped at the front end, coming to a pointed tip,
(C) the improvement which consists in the track elements being non-symmetrical, the tips of said tracking element front wedges being displaced from the longitudinal center line of each tracking elemen' in the direction toward the space between the tracking elements.

4,756,101
SWING WHEEL SNOWTHROWER

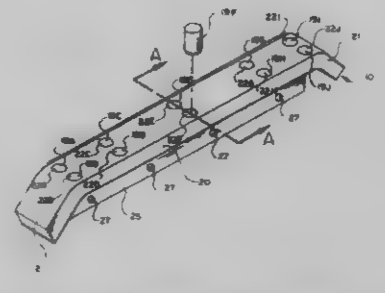
Nathan J. Friberg, and Steven J. Svoboda, both of Bloomington, Minn., assignors to The Toro Company, Minneapolis, Minn.
Filed Mar. 24, 1986, Ser. No. 843,448
Int. Cl.⁴ E01H *5/09*
U.S. Cl. 37—244 10 Claims



1. An improved snowthrower of the type having a frame movably supported by a pair of rotatable wheels; an engine carried on the frame for providing power; impeller means driven by the engine and carried on the front of the frame for contacting and throwing snow; means for propelling the frame relative to the ground; and a handle assembly extending rearwardly relative to the frame which an operator can hold to guide the frame, wherein the improvement comprises:
means for movably mounting the wheels to the frame for selective movement between a first position and a second position located to the rear of the first position, wherein the wheels are in engagement with the ground in both the first and second positions thereof, and wherein the first position of the wheels is located on the frame approximately beneath or slightly behind the center of gravity of the frame, and the second position of the wheels is located to the rear of the center of gravity of the frame, whereby the wheels may have their position changed depending on the snow conditions encountered.

4,756,102
RESILIENTLY MOUNTABLE SUPPORT STRUCTURE WITH WEAR RESISTANT CONTACTING SURFACE

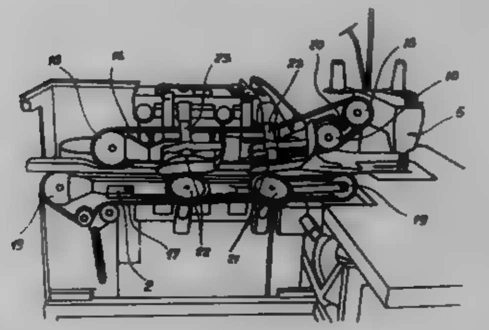
Larry D. Chapman, P.O. Box 475, Woonsocket, S. Dak. 57385
Division of Ser. No. 782,401, Oct. 1, 1985, abandoned. This application Feb. 27, 1987, Ser. No. 19,747
Int. Cl.⁴ E01H *5/06*
U.S. Cl. 37—270 12 Claims



1. A wear shoe for use with street sweepers, snow plows, snow blowers and the like, said wear shoe comprising:
a unitary runner having a ground engaging surface and an attachment portion, said runner having a plurality of cylindrical cavities therein, said cavities passing through said ground engaging surface;
a plurality of cylindrical wear resistant metal inserts maintained within said plurality of cavities such that each of said inserts substantially fills each of said cavities and said ground engaging surface is thereafter substantially without depressions or projections; and
flexible attachment means for resiliently attaching said unitary runner to said street sweeper, snow plow, snow blower and the like, said flexible attachment means including a first attachment section attachable to said attachment portion of said unitary runner and a second attachment section attachable to said street sweeper, snow plow, snow blower and the like, said attachment portion of said unitary runner and said first attachment section of said flexible attachment means being detachable from one another, whereby said unitary runner may be reversed and reattached thereby reversing the wear patterns on said ground engaging surface.

4,756,103
MACHINE FOR PRESSING OPEN SEAMS

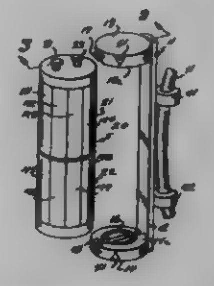
Giovanni Cartabbia, Via Fusline, 36, 25036 Palazzolo Sull-Oglio (Brescia), Italy
Filed Mar. 13, 1987, Ser. No. 25,729
Claims priority, application Italy, Mar. 21, 1986, 19822 A/86
Int. Cl.⁴ D06F *69/00*
U.S. Cl. 38—1 B 9 Claims



1. A machine for folding and pressing open the inside flaps of seams, adapted to be mounted downstream of a sewing machine for making up textile fabrics, said machine comprising:
a heated plate having a body with a front face and defining first, second and third chambers therein,
means connecting said first chamber to a source of steam,
means connecting said second chamber to a vacuum source,
means connecting said third chamber to an air blower supplying cold air, and
means defining a plurality of holes in said front face of said body of said heated plate,
a floating platen structure having a front face positioned opposite and facing said front face of said heated plate,
means defining a plurality of apertures in said front face of said floating platen structure,
means defining two chambers in said floating platen structure each said chamber being separated into two parts by a partition which divides it into two distinct portions;
two adjacent metal bands carried on pulleys rotatable about respective vertical axes running between said heated plate and said floating platen structure whereby to press the two inside flaps of a seam, which have been preliminarily separated by means of an appropriate separating member, against the inner face of the adjacent portions of fabric joined by said seam.

4,756,104
MESSAGE DEVICE FOR USE WITH CLOTHES HANGERS

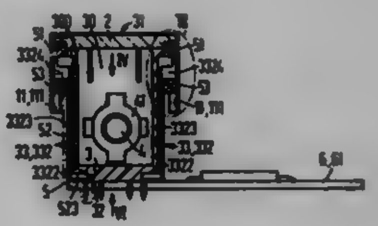
John W. Bailey, 5401 Burning Tree, Bakersfield, Calif. 93309
Filed Nov. 24, 1986, Ser. No. 934,547
Int. Cl.⁴ G09F *3/00*
U.S. Cl. 40—322 3 Claims



1. Apparatus for selective display of message combinations securable to a clothes hanger, comprising:
a frame member including an elongate spine piece provided with engagement means for selective attachment onto said hanger, said spine piece terminating in a first and second circular mount extending in cantelever from the ends thereof in opposing presentation;
said first and second circular mount including arcuate grooves in the opposed faces thereof;
a cylindrical assembly positioned between said first and second circular mount, said cylindrical assembly including a plurality of axial cylindrical segments engaged in a peripheral'y clasped engagement rotatable relative each other, each said segment having inscribed on the exterior thereof a plurality of messages in radial alignment; and
said cylindrical assembly including posts on the distal ends thereof, said posts being positioned in said grooves.

4,756,105
DISPLAY MEANS COMPRISING CONTACTING DISPLAY ELEMENT

[illegible] Wagner, Barbing, and Hans [illegible], Regensburg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany
Filed Feb. 2, 1987, Ser. No. 9,431
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1986, [illegible][U]
Int. Cl.⁴ [illegible]
U.S. Cl. 40—448 9 Claims



1. Display means comprising:
a display element with contacts, particularly an LCD (liquid crystal display);
an illumination means having a light box which is secured to a backside of said display element and which includes an outside and a connecting side proceeding at a right angle [illegible]
a contacting means having a conductive rubber element and contact elements for the electrical connection of every

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contact of said display element to a contact foot at said connecting side; and

comprising the improvement wherein said light box includes at least one contact receptacle at its outside, a contact receptacle being provided for each contact element and being bordered by partitions, and a contact element being inserted into said contact receptacle.

4,756,106

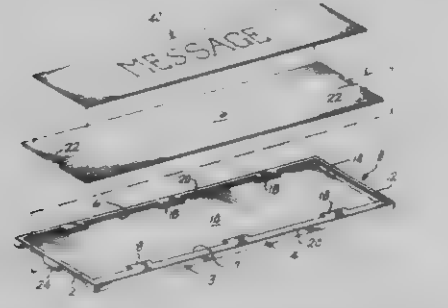
VEHICLE MESSAGE HOLDER

Philip H. Foster, P. O. Box 347, Indianola, Wash. 98342

Filed Dec. 22, 1986, Ser. No. 945,015

Int. Cl.⁴ G09F *21/04*

U.S. Cl. 40—591 7 Claims



1. A message holder for displaying interchangeable bumper sticker-type messages on a vehicle, comprising:

an envelope-like case which is rectangular in outline and has opposing faces and a planar pocket of similar outline therebetween that opens to the outside of the case through a pair of slots in the opposing end edges thereof, and

a two-sided plate-like message carrier which is also rectangular in outline and is adapted in size and sufficiently rigid that it can be bayonetted endwise into and out of the pocket of the case through the slots in the opposing end edges thereof,

the case having an opening in one face thereof which is adapted to display a message on one side of the carrier,

means for retaining the carrier in the pocket while the message is displayed through the opening of the case, and

means for securing the case to a surface of the vehicle opposite the other face of the case,

the carrier being adapted to be enclosed in its entirety within the pocket when it is inserted therein, and the slots being coplanar with the plane of the pocket so that when the carrier is to be inserted in the pocket, the carrier can be placed in the plane of the pocket and then bayonetted into the pocket through one of the slots, to register the message with the opening in the one face of the case, and when the carrier is to be removed from the pocket, it can be driven out of one or the other of the slots, in the plane of the pocket, and

the retainer means being connected with the opposing end edge portions of the case to extend athwart the plane of the pocket adjacent the slots, but being resiliently yieldable transverse the plane of the pocket so that they are displaceable from the path of the carrier when the carrier is inserted into and removed from the pocket, yet will reposition themselves athwart the plane of the pocket to retain the carrier in the pocket when it is enclosed within the same.

4,756,107

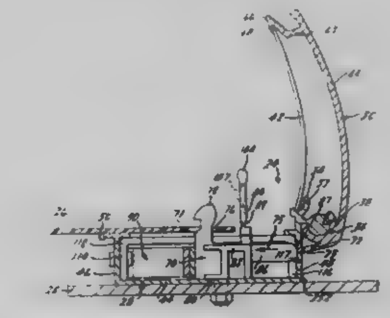
DISPLAY RETENTION AND TENSIONING FRAME

David U. Hillstrom, Novi, Mich., assignor to Marketing Displays, Inc., Farmington Hills, Mich.

Filed Apr. 14, 1987, Ser. No. 38,011

Int. Cl.⁴ G09F *17/00*

U.S. Cl. 40—603 14 Claims



1. A display frame device for holding and displaying a sign panel at an inner portion thereof, said sign panel having at least one sign panel opening extending therethrough generally adjacent an outer edge thereof, said display frame device comprising: a display frame assembly, said display frame assembly having a post member protruding therefrom, said post member having a free end adapted to be releasably received within and to extend through said sign panel opening, and retainer member pivotally interconnected with said display frame assembly for pivotal movement toward and away from said post member, and said retainer member having a locking aperture therein, said locking aperture being adapted to releasably receive said post member therein when said retainer member is pivotally moved toward said post member after said sign panel is installed on said display frame assembly with said post member extending through said sign panel opening in order to releasably retain said sign panel on said display frame device.

4,756,108

DISPLAY FRAME

Robert W. Lackey, Hickory, N.C., and Gregory A. Harris, Avondale Estates, Ga., assignors to McCalla-Lackey Associates, Inc., Norcross, Ga.

Filed Jun. 16, 1986, Ser. No. 874,421

Int. Cl.⁴ G09F *7/02*

U.S. Cl. 40—611 10 Claims

7. A display device which comprises:

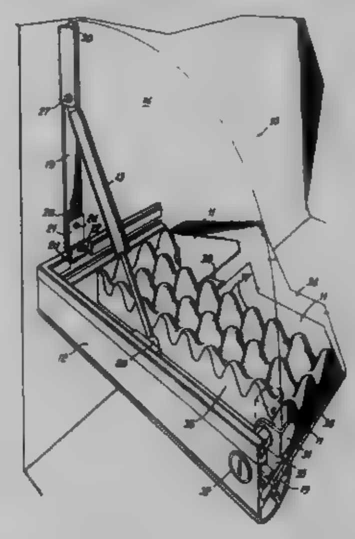
a rectangular display frame having a top, a bottom and two sides;

a transparent window mounted within said frame;

two elongated support members hingably connected to the bottom of said frame adjacent to the sides of said frame to be vertically mounted to a vertical supporting surface;

at least one damper connected between a side of said frame and an elongated support member which continuously controls the rate of descent of said frame when opened from a vertical position when said two elongated support members are mounted to a vertical supporting surface;

latching means on at least one side of said frame cooperating with the adjacent elongated support member for holding said frame in a vertical position when said two elongated support members are mounted to a vertical supporting surface.



4,756,109

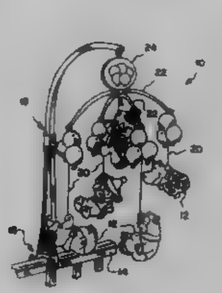
NURSERY MOBILE

Kenneth N. Marcus, Tipp City, Ohio, assignor to Dolly, Inc., Tipp City, Ohio

Filed Aug. 30, 1983, Ser. No. 527,924

Int. Cl.⁴ G09F *19/00*

U.S. Cl. 40—613 6 Claims



1. In a mobile, suitable for crib-mouting, having a mounting means, a support arm attached thereto, and means for suspending objects directly or indirectly from said support arm, the improvement comprising: soft, resilient, compressible, laminated characters suspended from said means for suspending objects, each said laminated character having two soft outer plies and an inner ply of a partially compressed non-woven batting which is heat sealable to said outer plies, and having a heat sealed periphery, each of said laminated characters also being light weight and non-free standing whereby the suspended laminated characters will not present a striking danger to the occupant of the crib to which said mobile is mounted.

4,756,110

SPEED LOADER

James M. Beltron, P.O. Box 40304, Reno, Nev. 89504

Filed Jul. 29, 1987, Ser. No. 78,894

Int. Cl.⁴ [illegible]

U.S. Cl. 42—87 11 Claims

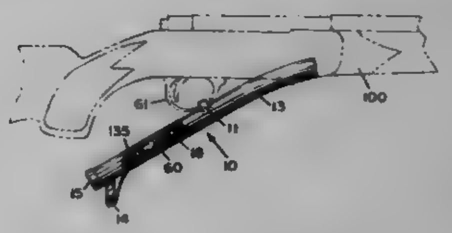
1. A shotgun speed loader comprising:

flexible wall means defining a column space for receiving at least one shell, and defining a storage position connected with said column space;

slot means is formed in said flexible wall means; and

pusher means mounted in said flexible wall means and movable from one end of said flexible wall means through said slot means thereby effecting rapid discharge of the shell from said column space;

said pusher means includes a body and a handle joined thereto;



said body includes at least one detent means arranged in annular form at the surface thereof to engage with one or more detent means formed at the inner surface of said flexible wall means;

said handle movable in said slot means, and said body movable in said column space, when said pusher means is moved from said storage position.

4,756,111

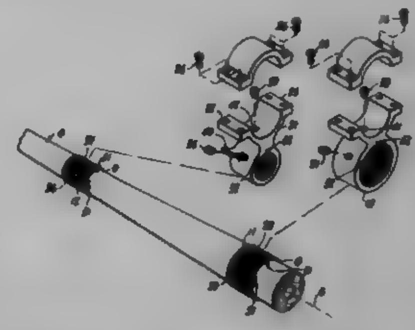
RIFLE BARREL MOUNT FOR A TELESCOPE SIGHT

Richard C. Lapier, 111 Joan Ln., Hollister, Calif. 95023

Filed Aug. 14, 1987, Ser. No. [illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 42—101 5 Claims



1. A rifle barrel mount for a telescopic sight comprising: a rifle barrel, said barrel having rear, external threads and front, external threads; a rear support structure including a pair of adjacent rear rings; threads in one of said rear rings engageable with and rotatable on said rear, external threads; a front support structure including a pair of adjacent front rings; threads in one of said front rings engageable with and rotatable on said front, external threads; and a telescope sight mountable on said rifle barrel by engagement with the other rings of said rear support structure and said front support structure, said front and rear support structures and said telescope sight being thereby adapted for simultaneous rotation from an above the barrel line of sight position into any desired side position around the barrel axis.

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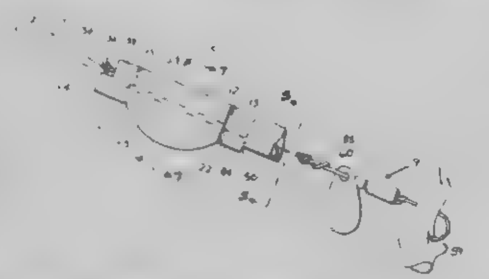
4,756,112

FISHING LURE RETRIEVER

Michael M. Sprague, 16843 4th Ave., S., Seattle, Wash. 98148
Continuation-in-part of Ser. No. 815,514, Jan. 2, 1986, abandoned. This application Nov. 7, 1986, Ser. No. 928,191
Int. Cl.⁴ A01K *97/00*
U.S. Cl. 43—17.2 5 Claims



1. A fishing lure retriever comprising:

a weighted body having means for slidably engaging a fishing line attached to the lure, said means defining an axis along the body and including opposing guideways oriented along and overlapping said axis, said guideways formed by converging walls of the body and interconnected by means of cross slots; an elongated upper portion; and ballast for providing a center of gravity beneath said axis between the ends of the weighted body;

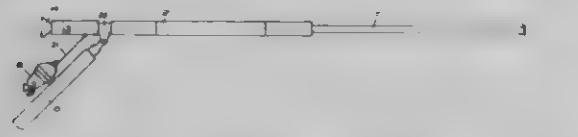
a trap section including a plurality of trap hooks projecting from the body and radially disposed about the axis, and a trap sheath extending forward from the body beyond the hooks and partially surrounding them; and

means for recovering the retriever including a line attached to the body and having a higher tensile strength than the fishing line.

4,756,113

FISHING DEVICE

D. Frank Eggertson, P.O. Box 1153, Camrose, Alberta, Canada T4V 1X2, and Lawrence W. Hillaby, 3908 52 St., Camrose, Alberta, Canada T4V [illegible]
Filed Sep. 23, 1987, Ser. No. 100,329
Int. Cl.⁴ A01K *91/02*
U.S. Cl. 43—19 9 Claims



1. A fishing device, comprising in combination:

a rod having a longitudinal bore extending therethrough, said rod having a forward and breech end;

a breech sleeve slidably mounted on the breech end of said rod, said breech sleeve having a wall with an opening therethrough;

a reel support handle movably attached to said rod immediately forward of said breech sleeve;

a fishing reel containing a flexible strand mounted on said support handle;

an anti-friction line feed tube extending through the wall opening of said breech sleeve to its center portion;

means for conveying air pressure removably attached to the posterior end of said rod in communication with the bore therethrough; and

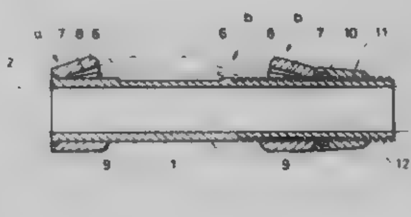
terminal tackle and impeller means disposed within said rod in sliding and sealing relation therewith;

said flexible strand extending from said fishing reel through said feed tube and being connected to said tackle and impeller means.

4,756,114

TUBULAR REEL SEAT

Ryuichi Ohmura, Shizuoka, Japan, assignor to Fuji Kogyo Co., Ltd., Japan
Filed Nov. 12, 1986, Ser. No. 929,349
Claims priority, application Japan, Dec. 26, 1985, 60-[illegible][U]
Int. Cl.⁴ A01K *87/06*
U.S. Cl. 43—22 4 Claims



1. A tubular reel seat, comprising:

a tubular body having first and second ends, wherein said first end has a plurality of external threads;

first and second reel-leg fixing sleeves, each sleeve substantially having the shape of a truncated right angle cone defining first and second ends, and first and second side walls,

wherein said first and second sleeves being longitudinally and rotatably slidable over said tubular body,

wherein the first end of said sleeves defines a larger diameter than the diameter defined by the second end,

wherein the axes defined by the sleeves are located upwardly relative to the first end and are substantially in coincident therewith on said second end,

wherein the axis of the diameter of the first end is different from the axis of the diameter of the second end,

wherein each of said sleeves defines a cross-section having third side walls which gradually enlarge from the second side wall to the first side wall,

wherein the inner surface of the second side wall of said first sleeve contacts the external threads of said tubular body,

wherein the second end of said second sleeve has a notch which mounts onto a protruding portion of the second end of said tubular body, and

wherein the second end of said first sleeve directly couples to a tube mounted on said tubular body for mounting, with said second sleeve, a reel on said tubular body.

4,756,115

FLEXIBLE SPREADER

Edward L. Reyes, 124 Hill St., Shelton, Conn. 06484
Filed Jun. 16, 1987, Ser. No. 62,668
Int. Cl.⁴ A01K [illegible]
U.S. Cl. 43—42.74 11 Claims

11. A process for making flexible spring spreader and double stand off for fish comprising the steps of:

(a) making a flexible spring of coarse turns having a few fine narrow turns at each end and at the center; and where in further said flexible spring is made from stainless steel tempered wire of approximately 0.020 inches diameter and where in twice as many fine turns are employed in the center than at each end separated by coarse turns in between;

(b) folding a mono filament line into two and weaving each end through half of said spring starting each end at the center and extending beyond one of the ends of said spring, which in turn comprises the following detailed steps:

(i) diagonally cutting 3 to 4 feet of monofilament 30 pound weight test line;

(ii) folding said diagonally cut monofilament line in half;

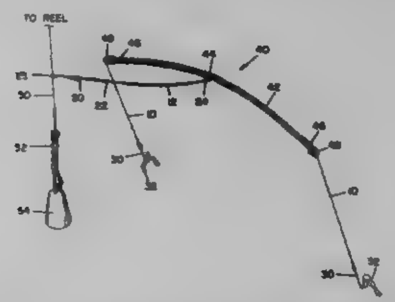
(iii) making approximately one inch wide overhand loop by a knot in said folded mono filament line;

(iv) feeding one end of said diagonally cut monofilament line at first coarse turn beyond center and guiding it through the spring to one end of the spring;

(v) feeding the other end of said diagonally cut monofilament line starting at the adjacent coarse turn, to said first coarse turn beyond center, and then guiding it through the spring to the other end; and

(vi) rotating or spinning said spring with respect to said folded monofilament line overhand loop till the filament line is approximately centered in the middle of the fine turns at the center;

(c) crimping said fishing line adjacent to the spring at each end over the filament line which extends a few inches beyond said spring so as to fix the relative position between the spring and the monofilament line and wherein a small gap of approximately one sixteenth of an inch is left between the spring and the crimp;



(d) hanging a fish hook at each hanging end of said monofilament line; and

(e) connecting a line and a sinker via a swivel clip, to an end of said folded mono filament line of the spring spreader comprising the following detailed steps;

(i) attaching a swivel clip at the end of a line to receive a sinker;

(ii) making a loop in the fishing line at the desired height from the bottom;

(iii) inserting the loop of the spreader into the loop of the fishing line;

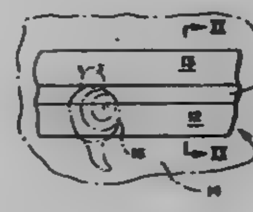
(iv) threading spreader through fishing line loop; and

(v) hanging a sinker of suitable weight on the swivel clip.

4,756,116

SNAIL BARRIER

John W. Cutter, 10 Sleepy Hollow La., Orinda, Calif. 94563
Filed Nov. 2, 1987, Ser. No. 115,893
Int. Cl.⁴ A01M *1/22*
U.S. Cl. 43—108 12 Claims



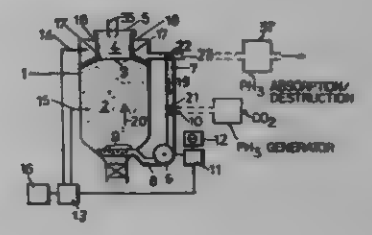
1. A barrier for inhibiting snails, slugs or the like from crossing a predetermined zone on a surface, comprising:

first and second electrically conductive strips extending along said zone of said surface and being positioned to be spanned by the body of a snail, slug or the like which attempts to cross said zone, said first and second strips being formed of dissimilar materials which have different electrochemical electrode potentials.

4,756,117

PROCESS AND APPARATUS FOR TREATING BULK COMMODITIES

Wolfgang Friemel, Heppenheim, Fed. Rep. of Germany, assignor to Dr. Werner Freyberg Chemische Fabrik Delitia Nachf., Laudenbach, Fed. Rep. of Germany
Division of Ser. No. 517,144, Jul. 25, 1983, Pat. No. 4,681,463. This application Aug. 7, 1986, Ser. No. 894,136
Claims priority, application South Africa, Jul. 26, 1982, 82/5322
The portion of the term of this patent subsequent to Mar. 24, 2004, has been disclaimed.
Int. Cl.⁴ A01M *13/00*
U.S. Cl. 43—125 23 Claims

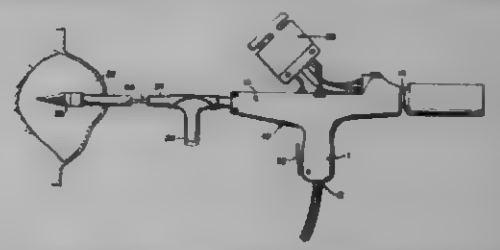


1. An installation for fumigating a commodity with phosphine gas, comprising an enclosed storage space for accommodating the commodity, the commodity occupying part of the space, a gas space portion above the commodity, occupying another part of the space, an inlet for introducing gas into the space, an outlet duct connected to the gas space portion, including a gas flow induction means and discharge passage means associated with a phosphine gas absorption or destruction means adapted to remove phosphine from gas withdrawn from the gas space portion before such gas is released to the atmosphere.

4,756,118

METHOD AND APPARATUS FOR THE DESTRUCTION OF IMPORTED FIRE ANTS OF THE GENUS SOLENOPSIS

Charles W. Evans, II, 975 20th St., Beaumont, Tex. 77706
Filed Aug. [illegible], 1986, Ser. No. [illegible]
Int. Cl.⁴ A01M *7/00*
U.S. Cl. 43—132.1 14 Claims



1. A method of treatment of areas infested with Imported Fire Ants of the Genus Solenopsis comprising the steps of:

preparing a treatment solution including a pyrethroid as the active ingredient;

preheating a heater portion of an injection lance assembly;

inserting a tip of the lance assembly into a Solenopsis infested mound;

delivering the treatment solution to a heater portion of an injection lance assembly;

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- vaporizing this solution in the heater portion of the injection lance assembly with temperatures sufficient to vaporize all constituents of the solution and ranging up to 2,210° F. (1,210° C.);
- regulating release of the vaporized solution from the injection lance assembly with a restricting orifice so that the vaporized solution builds up pressure in the lance assembly;
- releasing the vaporized solution under pressure from the end of the lance in a time interval of no more than ten seconds such that the vaporized solution kills ants before they can evacuate the colony and condenses on internal surfaces of the mound to provide lasting protection against regeneration and rehabitation of the mound.

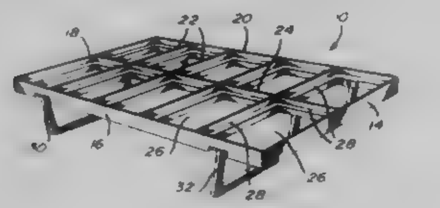
4,756,119
BASE SUPPORT FOR SEED TRAYS

Jean-Marie Chabot, St-Damien, Canada, assignor to Les Industries Provinciales Ltee, St. Damien, Canada

Filed Mar. 31, 1986, Ser. No. 846,138

Int. Cl.^{4} A47G *7/00*

U.S. Cl. 47—39 6 Claims



1. A tray for supporting plant growing cartridges comprising:

- a frame including walls defining a plurality of compartments, each compartment having a through opening therein, means in said compartment for supporting a plant growing cartridge therein and in said through opening, said frame walls defining channels opening along the underside of said frame;
- retractable support means pivotally mounted to said frame, said support means including a pair of legs respectively pivotally mounted at respective points along said frame, said points being at least one leg length from adjacent opposite ends of said frame, respectively, each of said legs being pivotable beneath said frame through an arc greater than 90° between a stored position, wherein said legs lie in a plane generally parallel to said frame and in said channels, and an upstanding tray supporting position wherein each of said legs lies in a plane subtending an angle of more than 90° with the plane of said frame and said legs when the latter lie in their stored position, and
- stop means for maintaining said legs in said upstanding tray supporting position whereby a space is provided beneath said frame, when supported by said legs, to allow air circulation beneath said cartridges and to plants therein.

4,756,120
GRAVITY FEED HYDROPONIC SYSTEM

James M. Arledge, 3100 Cypress St., West Monroe, La. 71291

Continuation-in-part of Ser. No. 663,400, Oct. 22, 1984, Pat. No. 4,574,520. This application Mar. 10, 1986, Ser. No. 838,124

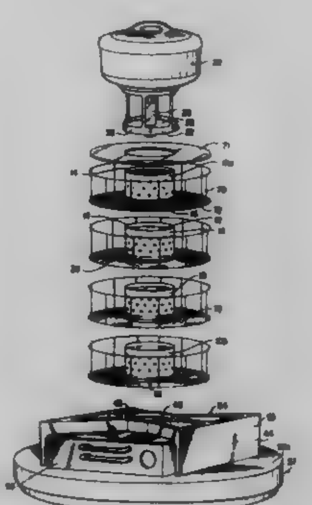
The portion of the term of this patent subsequent to Mar. 11, 2003, has been disclaimed.

Int. Cl.^{4} A01G *31/00*

U.S. Cl. 47—59 13 Claims

1. A system for hydroponically growing plants in a vertical array comprising:

- (a) a vertical cylindrical column comprising a plurality of stackable cylindrical column sections including a column top section and a column bottom section, each section adapted to contain an inert support material, each section including top and bottom portions and a plurality of side apertures, the top portion of each section defining a top opening of a column section and the bottom portion of each section defining a bottom opening of a column section, the bottom portion of each section including a screen for containing inert support material within the section and for preventing roots from growing outside the section through the bottom opening of the section, the bottom portion of each section further including a screen support for supporting the screen at the bottom of the section and for supporting roots within the section, the top portion of each section being adapted to mate with and support a bottom portion of an adjacent section, the bottom portion of each section being adapted to mate with the top portion of an adjacent section;
- (b) a nutrient reservoir for positioning above the column and adapted to contain a nutrient solution;
- (c) a column cap having a passageway therethrough, the cap being adapted to mate with the top portion of the column top section and to cover the top opening of the column top section to restrict evaporation of nutrient solution therethrough;



- (d) means for supporting the nutrient reservoir above the column cap; and
- (e) an adjustable valve having an inlet and an outlet for controlling the rate of introduction of nutrient solution into the column, the inlet of the valve being connected to the nutrient reservoir, the valve being mounted on the column cap by means including a hollow pipe at least a portion of which pipe is transparent, the pipe connecting the outlet of the valve with the passageway in the column cap to restrict evaporation of nutrient solution through the passageway in the column cap, the valve being adjustable to control regularly timed drips of nutrient solution into the column, the pipe permitting unrestricted passage of nutrient solution from the valve through the passageway in the cap to permit accurate timing of the drips of nutrient solution and gravity feed of nutrient solution into the column, the transparent portion of the pipe permitting visual inspection of the rate of introduction of nutrient solution from the valve into the column.

4,756,121
AUTOMATIC IRRIGATION DEVICE FOR CULTIVATED SOIL

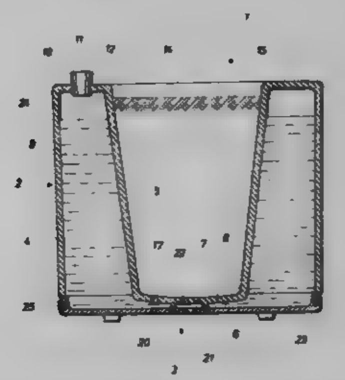
Alexander Wild, Rathausgasse 30, CH-3011 Bern, Switzerland

Filed Nov. 12, 1985, Ser. No. 796,973

Claims priority, application Switzerland, Nov. 13, 1984, 5420/84; Mar. 29, 1985, 1347/85

Int. Cl.^{4} A01G *25/00*

U.S. Cl. 47—80 10 Claims



1. Automatic irrigation device for cultivated soil, comprising a wall (4–7; 31–33; 42, 43; 51; 61) surrounding a reservoir (9) for water and having an opening for introduction of the water, a removable sealing means (11) airtightly sealing said opening (12), said wall having two passages (17, 18; 36, 37; 44, 45; 54, 55; 63, 64) for the discharge of water from said reservoir (9) and for the entrance of air into the reservoir, said reservoir being airtightly sealed by said wall (4–7; 31–33, 42, 43; 51; 61) and said sealing means (11) except for said two passages (17, 18; 36, 37; 44, 45; 54, 55; 63, 64), said two passages each having an outside end intended for adjoining soil to be automatically irrigated, said outside ends of said two passages being spaced-apart by a distance which is less than n-3 cm, wherein n is the number of liters of the reservoir volume, said passages having diameters in the range of 0.5–5 mm, whereby when soil to be automatically irrigated covers the outside ends of the two passages water from the reservoir can flow out of one of said passages only upon entrance of air through the other of said passages and the flow is stopped when the water after passing said distance reaches the outside end of the other of said passages, preventing the further entrance of air through the other of said passages allowing a vacuum to be formed in the reservoir above the level of the water therein.

4,756,122
REMOVABLE WINDOW BAR

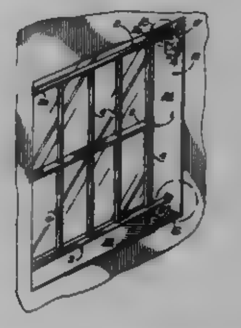
Charles J. Szepka, Box 193, Neches, Tex. 75779

Filed Feb. [illegible], 1987, Ser. No. [illegible]

Int. Cl.^{4} [illegible]

U.S. Cl. 49—57 20 Claims

1. A removable window bar for a window having a window facing, comprising a top bar, a bottom bar provided in spaced, parallel relationship with respect to said top bar; at least two vertical bars connecting said top bar and said bottom bar; bar seat means attached to the window facing for supporting said bottom bar; a pair of latch stays attached to the window facing in facing relationship above said bar seat means and a stay cylinder provided in each of said latch stays, respectively; a latch rotatably carried by each end of said top bar and a barrel trough provided in said latch, whereby said latch slectively engages and disengages said stay cylinder in said latch stay, respectively, responsive to rotation of said latch with respect to said stay cylinder, respectively.



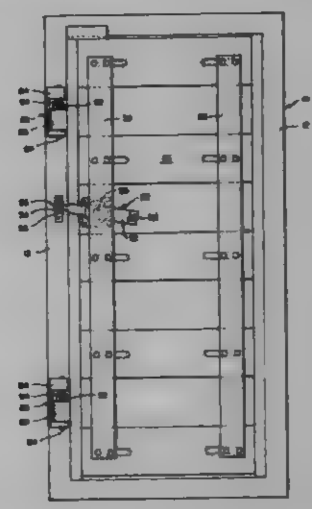
4,756,123
CHAMBER DOOR

John N. Roche, Greenville, and David Zelner, Fairview, both of Pa., assignors to American Sterilizer Company, Erie, Pa.

Filed Nov. 25, 1986, Ser. No. 934,987

Int. Cl.^{4} E05F *7/02*

U.S. Cl. 49—255 18 Claims



1. A door apparatus for a chamber having a door frame which defines an opening into said chamber, comprising:

- (a) a door of the shape of said opening;
- (b) means mounted on said door for vertically displacing said door relative to said door frame; and
- (c) hinge means mounted on said door frame and attached to said door so as to support said door on said door frame at a first elevation in which said door is not in alignment with said door frame and said door may be horizontally rotatably moved and at a second elevation in which said door is in alignment with said door frame and said door may be horizontally displaced toward and away from said door frame.

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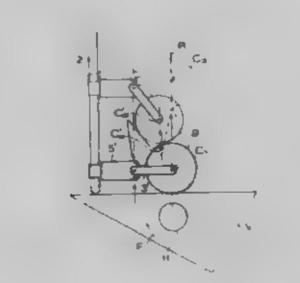
4,756,124
MACHINE FOR GRINDING THE EDGES OF A SHEET OF GLASS, PARTICULARLY FOR AUTOMOBILE WINDOWS

Pierluigi Rossi, Termoli, and Dino Di Nocco, San Salvo, both of Italy, assignors to Societa' Italiana Vetro SIV S.p.A., Vasto, Italy

Filed Jan. 29, 1987, Ser. No. 8,586
Claims priority, application Italy, Feb. 4, 1986, 47617 A/86
Int. Cl.⁴ B24B *9/10*
U.S. Cl. 51—33 W 4 Claims

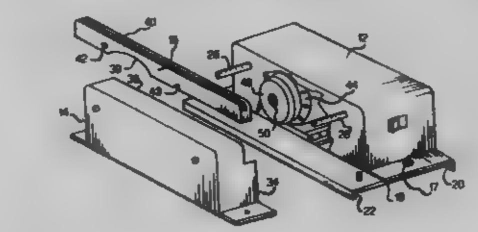


1. An improved machine operated by digitally controlled electric motors for grinding the edge of a sheet of glass, including a grind wheel rotating at a fixed speed about an axis of rotation, and carried by a wheel arm supported on an horizontally reciprucating carriage, moved as a function of the geometrical shape of a sheet to be worked, along a rectilinear path fixed with respect to said sheet, said sheet being supported and rotated by a chuck having a fixed position and a variable speed of rotation which determines the grinding speed, said machine being characterized by the improvement comprising: a support for said wheel arm secured to said carriage through a journal bearing for a horizontal pivotal movement; a journal shaft secured for a horizontal pivotal movement to said support and positioned in an horizontally offset and parallel relationship with respect to said journal bearing, said wheel arm being rigidly secured at one end thereof to said journal shaft and supporting said grind wheel at the other end thereof; a digitally controlled torque motor for controlling the attitude of said support and providing the grinding pressure, said motor being connected to said journal bearing of the support for rotating said bearing to such an extent that the orientation of said support, as defined by a straight line passing through the axis of rotation of said bearing and the axis of rotation of said journal shaft, is constantly maintained parallel to the tangent on the profile of the sheet of glass at the instantaneous working point; and a digitally controlled piston acting between said support and said wheel arm for controlling the angle between the support and the wheel arm and maintaining the axis of rotation of the grind wheel constantly on a path defined by a straight line parallel to the rectilinear path of said carriage and crossing the axis of rotation of said sheet.

and means to removably secure said housing to said box, the top of said housing being slightly spaced from the said box so as to leave a slot between the housing and the box and over said plane of the wheel;

(d) a longitudinal guide member fixed in said slot having a groove in its upper surface with parallel walls corresponding to the width of the skating blade, the said groove being aligned with said plane of the said grinding wheel and being provided with an opening in its bottom surface for permitting an upper segment of the wheel to slightly protrude in said groove;

(e) means for adjusting the distance between the grinding wheel and the guide member so as to vary the protrusion of the said upper segment of the wheel in said groove, the said adjusting means comprising an angular bracket having a vertical and a horizontal portion, the said motor being fixed to said vertical portion, threaded means mounted between said bottom of the box and said horizontal portion for vertically moving the said wheel, the said bottom of the box being hingely mounted to said horizontal portion along an axis parallel to the shaft of the motor, spring means mounted between said horizontal portion and said bottom of the box for resiliently biassing the horizontal portion upwardly, the said threaded means adapted to raise the said wheel to a predetermined upper level,



(f) the said means for removably securing said housing to said box comprising a supporting plate extending below said box and said housing and fixed thereon, a pair of rods secured to the box and extending freely through said housing, both said rods being located at a level substantially corresponding to the upper periphery of the wheel and spaced on each side of said wheel, said rods being adapted to support the guide member, said guide member being pivotally fixed at one end to one of the said rods and being removably hooked on the other rods so as to permit visual observation of the grinding wheel through the said slot when the guide member is pivotally lifted around the said first rod, the outer edge of the wheel having a convex cross-section, to form a concave groove in the bottom of the skate blade

4,756,126
D FOR CONTROLLING THE MA
MECHANICAL PIECES

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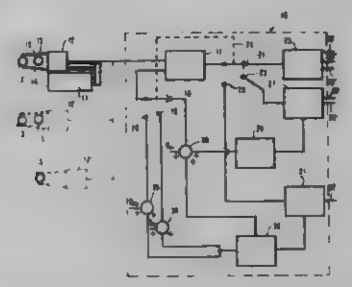
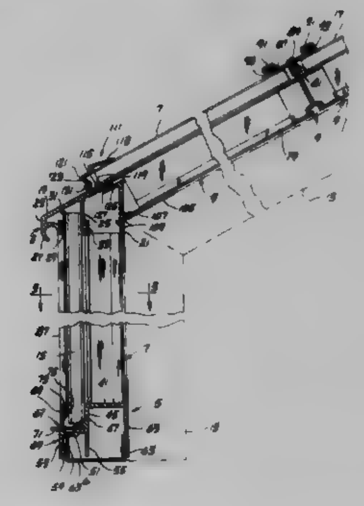
cess measuring, in order to obtain a second measurement signal; a second comparing step for comparing the second measurement signal with a second reference; and correcting the first reference depending on said second comparing step.



4,756,127
UNIVERSAL FRAMING SYSTEM FOR GLAZING AND METHOD OF USING SAME

Arlen Helterbrand, and Patrick J. Holthaus, both of Pana, Ill., assignors to National Greenhouse Company, Pana, Ill.

Filed May 30, 1986, Ser. No. 869,081
Int. Cl.⁴ E04B *7/02*
U.S. Cl. 52—90 22 Claims



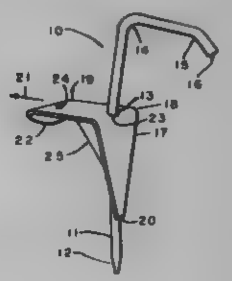
1. A universal framing system adapted for use with glazing having substantially any thickness within a wide range of thicknesses, said system comprising an elongate eave member having a top wall, a first flange depending from the top wall and extending longitudinally of the eave member generally adjacent the front of the eave member, a second flange depend-

glazing yet having a flexibility sufficient to accommodate a relatively thick sheet of glazing.

4,756,128
BEACH ANCHOR

Edward R. Daniell, [illegible] Yolanda Ave., Santa Rosa, Calif. [illegible]

Filed Jul. 30, 1987, Ser. No. 79,571
Int. Cl.⁴ E02D [illegible]; E04H [illegible]
U.S. Cl. 52—156 13 Claims



1. A beach anchor comprising:
a rod, having a pointed end to be inserted down into soil and the other end formed into a handle; and
a flat strip, divided into three parts by a first right angle bend between the first part and the first end of the platform and a second right angle bend between the second end of the platform and the third part; with
the first part, having a wide end and a narrow end, attached to the rod, with the narrow end above the pointed end of the rod and the wide end attached to the first end of the platform; with
means to support the platform; with
the handle higher than, and at one end of, the platform.

4,756,129
GROUND ANCHOR AND APPARATUS TO SET AND REMOVE SAME

Brian C. Webb, 4236 S. 76 E. Ave., Tulsa, Okla. 74145

Filed Dec. 21, 1982, Ser. No. 451,878
Int. Cl.⁴ E02D *5/74*
U.S. Cl. 52—157 1 Claim

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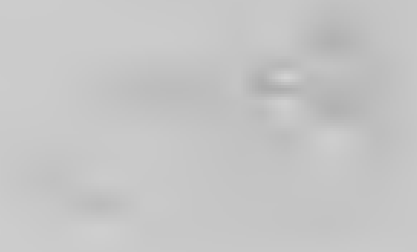

550. Div. This application May 21, 1986, Ser. No. For priority, application Sweden, Jan. 30, 1980,

has been disclaimed.

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L, Cape Town, South Afr

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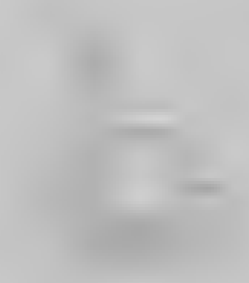

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E. A. GYNH
ter Opel, and Arn
Rep. of Germany, assignor
ie (KGaA), Fed. Republ
ed Jan. 8, 1987, Ser

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Aubiere, Clermont-Ferran

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NAL COMBUSTION ENGIN

9, 1986, Ser. No. 84

H YDROSTATIC

matik GmbH, Elchin

d Oct. 3, 1986, Ser. No

application Fed

g. 30, 1986, 36

ssor to Hydromatik GmbH, Fed. Rep. of Germany
iled Oct. 29, 1986, Ser. No. 924,

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[illegible]

[illegible], Armstrong Township, Vanderburgh C[illegible]

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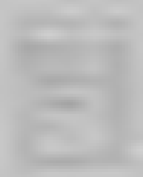

[illegible] energizing said heater. [illegible]

[illegible]

[illegible] in said valve [illegible] per end of said dr[illegible] annular passage surrounding [illegible] other port in said valve body in [illegible] second annular passage, [illegible] with said [illegible] tending passa[illegible]

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, Bradford, both of United Kingdom; Soichiro Kishida, Kyoto, Japan; Yasuyuki [illegible], Shimotoyoura, Japan; Katsutoshi Aloe, [illegible]kamura Minami, Japan; Tatsuro Yamada, Kodaira, Japan and Jyo Naramiya, Sayama, Japan, assignors to Wool Development International Limited, Ilkley, United Kingdom and

, Ser. No. 721,5

nd second ends, where
ed to said spool, where
nt of a separable lock d
said lock device is se
that when said first e

prising a crank handle
g, said crank handle be

r, Texarkana, Ark., assignor to
kana, Ark., a part interest

end thereof adapted to be inse
orward end of a trailer tongue in lieu of
ll attached to a towing vehicle thereby preventing the
ll attached to a towing vehicle from entering the ball s
hen the trailer lock hitch ball is positioned therein, a lock
mber movably connected to said stand and movable from a
ked position adjacent to the ball socket to prevent discon
the hitch ball on the stand from the ball socket
position spaced from the ball socket to permi
l on the support stand to enter and be removed
ll socket, a padlock assembly releasably secur
mber in locked position, and means affixed

lock pin plate mount
and substantially cen
in plate including protru
ntiguous limiting open

plate, so that when the lock stand is moved lo
and an extended arm thereof leaves the recess
said sliding plate, said sliding plate will spri
said casing, thus providing the zipper lock
position and when the zipper lock is in a clos
said protrusion means of said lock pin plate ca
o said at least one recess hold in said seat plat
the said lock stand is movable in the lon

Masaji Konii, Tokyo, Japan, assignor to Koko

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[illegible] t to bl[illegible] with th[illegible]

[illegible]

4,755,176

[illegible] COMBINATION LOCK

[illegible], South San Gabriel, Calif., assignor to La C[illegible] [illegible]errance, Calif.

[illegible] of Ser. No. [illegible], Nov. 30, 1985, aban[illegible]

[illegible]

[illegible] ion being capable [illegible]

[illegible] 29) blockingly associated with said lock[illegible] [illegible] 23e) and shaped so that rotational position[illegible]

[illegible] after, said finger [illegible]

[illegible] 91 and 220) [illegible] circular sec[illegible] [illegible]dles (3 and 2) [illegible] two boomeran[illegible] [illegible]her proximate [illegible] of said inner surface; said outer su[illegible] having smoothly curved conto[illegible] [illegible]ing (19) including two wings (19[illegible] [illegible] (19b), and two side plates (1[illegible] [illegible] holes thereon fo[illegible] [illegible]sponding rolle[illegible] [illegible]ing respective [illegible] substantially fric[illegible]

[illegible]

[illegible], Mt. Clemens, and James K[illegible] [illegible] of Mich., assignors to Anderson-Cook, Inc., Fr[illegible]

Division of Ser. No. 74?,971, Jun. 12, 1985, Pat. N[illegible] which is a continuation-in-part of Ser. No. [illegible]

Int. Cl.[illegible] B[illegible]

U.S. Cl. 72[illegible]

[illegible]

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[illegible] Uemura, all of Itami, Japan, assignors [illegible]

[illegible] continuation-in-part of Ser. [illegible]

assignors to Valmet Oy [illegible]
Filed Apr. 18, 19[illegible]

[illegible] AND CHAMB[illegible]

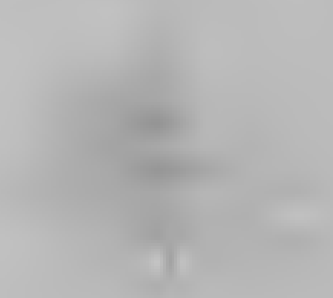
[illegible] assignors to Andes [illegible]

[illegible] measurement signal [illegible] which is input [illegible] and, at the same [illegible] speed of rotation of said [illegible] generating a speed meas[illegible]

[illegible] is substantially equal [illegible] at which time said sp[illegible] said central unit correct[illegible]

[illegible] permeability [illegible] based on a previ[illegible] values of speed measu[illegible] and predetermined stand[illegible]

[illegible] AND METHOD FOR [illegible]
[illegible] FLEXIBLE CONTAINE[illegible]
[illegible] Maple Grove; Michael G. Villa[illegible]
Timothy R. Cooley, Bloomington, all of [illegible]
General Mills, Inc., Minneapolis, Minn.



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Dec. 11, 1985, aband
Sep. 3, 1981, Ser. No.

connects two adjacent
said guides substantial

and said output
modes irrespective of
normality or abnorma
luding an opera
ration sequence

E STRETCH IN DETERMINI
DEPTH IN A WELL AND FOR
EASUREMENT OF HOOKLOAD ON THE
BLOCK OF A DRILLING RIG

Lettis J. Fennell, Rancho Cordova, Calif., ass
gging, Inc., Sacramento, Calif
Filed Jun. 30, 1986, Ser. No.
Int. Cl.

the traveling block, w

ETHOD AND APPARATUS FOR DETERM
ARACTERISTICS OF CLAY-BEARING FORMATIO
lter H. Fertl, and Ashok K. Sinha, both of Houston, Tex
assignors to Western Atlas International, Inc., Houston, Tex
ntinuation-in-part of Ser. No. 416,826, Sep. 13, 1982, Pat. N
This application Feb. 14, 1986, Ser. No.
Int. Cl.

FLOW MEASURING APPARAT
ING UNIFORM CHARACTERISTICS
Ohta, Okazaki; Michitoshi Onoda, Toyota
Miura, Aichi; Seizi Huzino, Anjo, and Take
tori, Okazaki, all of Japan, assignors to Nippon
Filed Aug. 8, 1986, Ser

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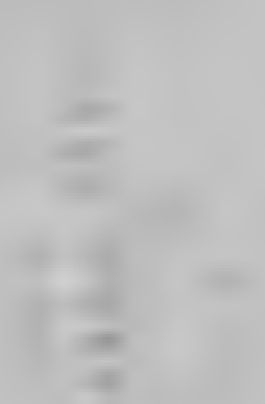
EM FOR CONTROL
OADED STRUCTURES

Grandpierre, Toulouse, and Augustin Moline, Tthere, b
f France, assignors to Aerospatiale Societe Nationale Indu



tical increase in the length of said crac
l length, so as to determine an instantane
ngth of the crack
tinuously compa
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rting said region as soon as said theore
es said maximum acceptable length,
comprising measuring the successive
reases and the number N of successiv
tions thereof, and for each cycle of variat
ng the maximum M and minimum m values of said
s C, as well as the ratio $R=m/M$ and the difference

from the expression $dl/dN=F(R,dK)$ in whic
K) is a function of the ratio $R=m/M$ and of th
on dK of the stress intensity factor,
tical increase of the crack
retical speed dl/dN, an
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said initial length determined under
ng step (b) and said theoretical increa

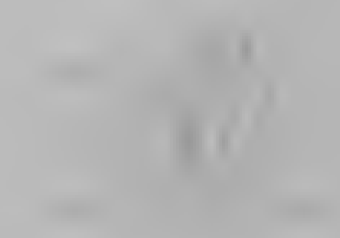
ELASTICITY TESTER APPARATU
ADAPTED FOR TESTING COMPLIA
MATERIALS

id L. Melton, and Keith E. Caudill, both of F
nd., assignors to ITT Aerospace Optical a div
rporation, Fort Wayne, Ind.
Filed Nov. 24, 1986, S
nt. Cl.4 G0

ating the modulus of
board specimens having
one surface with a thin layer of compliant mate
ed to provide thermal strain relief for solder jo
components mounted on said compliant sur

ating stac

LOW MEASURING APPARATU
f Schmitt, Frankenthal, Fed. Rep. of Germany,
KMG Electronic GmbH, Frankenthal, Fed. Rep.
Filed Jan. 11, 1986, Ser. No. 87?,9??
Claims priority, application Fed. Rep. of Germ



ependent on the flow rate, wherein, startu

r J. Hirth, M

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, Sarteinsoach, all of Austria, as
ngesellschaft, Linz, Austria
filed Mar. 25, 1987, Ser

iled Feb. 10, 1987

ETHOD FOR CONCEN
E OPEN TUBE SAMPLING
Steiner, Pelham, N.Y., assignor

he provision of samples to said sample

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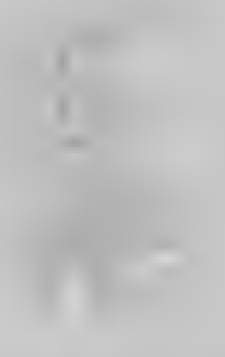

…R FOR MANUAL…
…ing, Naugatuck, Conn., as…
…d Feb. 2, 198…

…SPINDLES

…ki Hayashi, Osa…
…obayuki Yamashita, and Nizo Bando, both of…
…ssignors to Kubota, Ltd., Shikitsuhigashi…
Filed Jan. 5, 198…, Ser. No. 55…

…RIVING OF TWO STRUCTURES
…anchi, Valentigney; Alain Duval, Ma…
Fourrey, Montbeliard, all of France, assign…
…eugeot, Valentigney, France
Filed Sep. 30, 1986, Ser. No. 913,…

…POWER TRANS…
…imada; Kazunori Shibuy…
Kazuhiko Shimada, all of Saitama, Japan, as…

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…hafts being dis…

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TRANSMISSION MECHANIS

ren, Dearborn Heights, and Rober

Lyon, both of Mich., assignors to Ford Mot

cation Aug. 5, 1986, Ser. No. 89

portion of this patent subsequen

nent, planet

to said tran

adoption of

gure within said mechanism, and in wh

p means are associated with the operat

am, 1 Greenbrook Ave., Hadley Wood, Barnet,

Eng.

PLANET GEAR CAR

bee, Troy, Mich.

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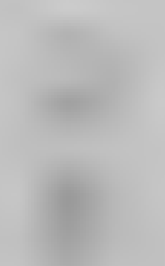
.ally connected to the motor, a reversing switch c… coupled with the motor, and an adjusting rod adj… ably arranged in a top side of the body structure… disk seat means having a plurality of tabs ve… ding a periphery thereof, at least two po… in opening symmetricall… supporting lug with a g… being mounted on top c…

…flecting brakin…

… City, Taiwan



…ng means mounted on said fra… erewith, said means including a first… knife edge and first actuating mechani… moving said first roller into and out from… with the pipe;

a second pipe engaging means mounted on said… movable therewith, said means including a second roller having a knife edge and a second actuating mechanism for moving said second roller into and out from engagement…

…llers being rotatably mounted o… e axis of pipe being formed and sp… pe, each contact roller rotating… ed with the pipe and movable a…

…ING PANELS
…TTING MACHINE
…SAID METHOD

Rep. of Germany

Claims priority…

…ith C. Olsen, Sunnyvale, and Richard H. S…

…continuation-in-part of Ser. No. 8…

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2
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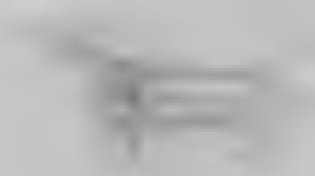
[illegible] distance from
slide from contacting [illegible]
he off hand is activating
, the switches of said p[illegible]
lied by the off hand of [illegible]

AW CHAI[illegible]
[illegible]dorf; Hans Dolata, Waiblingen, [illegible]
[illegible] Ostfildern, all of Fed. Rep. of Germany
[illegible] Stihl, Waiblingen, Fed. Rep. of Germany
[illegible] Jan. 28, 1987, Ser. No. 7,746

[illegible]

and outer edge protrudes outwardly beyond
[illegible] path when said saw chain is under said tension [illegible]
[illegible] absence of said advancing and cutting forces and
[illegible] thereat said rearward lower edge be-
[illegible] plane of one of the bearing surfaces
[illegible] advancing and cutting forces thereby

MUSICAL CONTAINER
Michael Armato, Crystal Lake, Ill., assignor to [illegible]
[illegible], Chicago, Ill.



[illegible]

[illegible] Hamamatsu, Japan
Filed Jun. 19, 1987
priority, app[illegible]

[illegible]

[illegible]

APPARATUS W[illegible]
ROTOR
[illegible] E. Hillcrest

[illegible] shored to the sprocket.

[illegible]

Box 7112 S[illegible]

[illegible]

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2
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UMI

Douglas F. Kerr, and Richard D. Gree
United Kingdom, assignors to British

edge of said sta
edges being ge
of flight of th
aped to moun.

ACTUATOR

George M. Drukeley, Suffield, Conn., assignor to
Corporation, Hartford, Conn.
Filed Sep. 25, 1986, Ser. No. 911,5

g a position scale traj

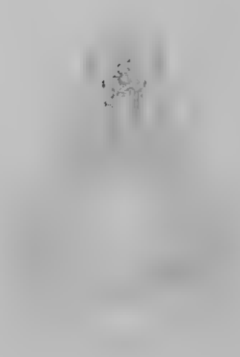
position scale trajectory and the
le trajectory, for sensing passage

4,756,230

FOR PNEUM

to Stewart War

Ser. No. 9

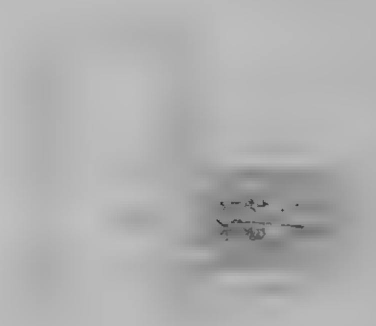


l an exhaust, an
ng the exhaust
e the valve asse

urved surface

IC BRAKE BOOST

Saitama; Jun Kubo, Tokyo, and
Yokohama, all of Japan, assignors to Nissan Motor
and Jidosha Kiki Co., Ltd., both of, Japan
Filed Aug. 7, 1986, Ser. No. 89
application Japan, Aug. 13, 198
Int. Cl. F15B



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portion and a bearing member slidably supported on
... shank portion of the rod, the bearing member
a side opposite the return spring, laterally spaced
bearing surfaces cooperating respectively in
gagement with a first abutment movable with
... abutment having at least one fixed refer...
... formed by an end p...
... the casing, the end p...
... rod, the hub portion having
... ly guided in a central
... e stop member being
... end extending concentrically around the
... portion, and the bearing member incl...
... gaged on the rod and having a first end

... Toshio Nishiyama, both of Kiryu

and a first solenoid having an armature mov...
in said solenoid with a poppet valve member ...
one end of said armature and aligned with said fir...
for selectively opening and closing said first por...

... ably received in said second solenoid with a

... ening and closing said
... nospheric pressure to ...

4,756,226
GAS COMPRESSOR
... Kawamura, Katsuta; Masaharu Okazaki, ...
and Kazushi Sasaya, Katsuta, all of Japan, assignors to H...
..., Ltd., Tokyo, Japan
... Jan. 12, 198...
... application Ja...

... Shaporalov, all of Krasnodar, U.S.S.R.,
... zavod", Krasnodar, U.S.S.R.

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UMI

…R PERFORMING PLURAL … A COMMON WORKPIECE

…Okazaki; Hideaki Tobita, and Tetuo Kawakami, …of Toyota, all of Japan, assignors to Kyoho Machine …Ltd. and Toyota Jidosha Kabushiki Kaisha, both of

ANTI-ROLLING STRUCTURE FOR DOUB… PISTON OF DISC CAM TYPE RECIPR… COMPRESSOR

Mitsuhiro Hattori; Katsunori Kawai; Masayuki Tanikawa, and Takeshi Okamoto, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

Filed Nov. 18, 1987, Ser. No. 122,25…

Claims priority, application Japan, Nov. 28, 19…

…Sakurahara, Saitama, and Toyomi Shiba, Tokyo, b… Japan, assignors to Honda Giken Kogyo Kabushiki K…

…Radford, Birch Rock; Norman … …raeme W. Jameson, Kew; Hendri… …merald, and Brian J. Sutherland, Springval… Australia, assignors to Commonwealth Scienti…

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[illegible] system
[illegible]lation means
[illegible]lation of the
[illegible]d system under conditions whereby
[illegible]ystem is substantially free of coagula-
[illegible]n means includes control means for

[illegible] means for feeding sheets of paper to the impres[illegible] cylinder, means provided on the impression cylinder for [illegible]cessively retaining the sheets of paper on the surface of [illegible] impression cylinder as the latter rotates through a predeter[illegible]mined arc, a shaft mounted on the frame in spaced relation and parallel to the axis of rotation of the impression cylinder and [illegible]in said arc, driving means for driving said [illegible] [illegible]er and said shaft in registry, a group of printing [illegible]luding a numbering device, a letter press head and [illegible] flexographic printing cylinder; means for releasably mount[illegible]ng said printing elements on said shaft such that said printing [illegible]ements contact said impression cylinder surface within said [illegible]s including at least an in[illegible] [illegible]cting and transferring [illegible] [illegible]aid shaft, a perforat[illegible] [illegible]he impression cy[illegible] [illegible]rame adjacent t[illegible] within said predetermined arc and driven by sa[illegible] means to press a sheet of paper on the impression [illegible] passing through said arc against the perforation strip, [illegible] said printing elements [illegible] actuatable upon rota[illegible] [illegible] said printing eleme[illegible] [illegible]lish their respecti[illegible] [illegible]heet retained [illegible] [illegible]nting elements an[illegible] [illegible]haft and impression cylinder, [illegible]e of said printing elements and

[illegible]dicott Jewel Plate,

[illegible]wot pin firmly.
[illegible]ne of said means being [illegible]
[illegible]npregnated with lubricant; and
[illegible]lth and depth of said slot in said
[illegible]d material being sufficient to a[illegible]

4,756,247

[illegible] CONVERSION OF A PR[illegible]
[illegible]S TO OFFSET PRINTING

[illegible]chael A. Schwartz, 1073 Posca St., Batavia, Ill. 60510, a[illegible]
[illegible] Yamagata, 450 W. Briar Pl., Chicago, Ill. 60657
[illegible] of Ser. No. 275,208, Jan. 19. 1984, Pat. No. 4,4[illegible]
[illegible] application Sep. 27, 1982, [illegible]
[illegible] Int. Cl.[illegible]

[illegible] the main frame
[illegible]eans for conver[illegible]

[illegible]pression [illegible]
[illegible]ary impression

[illegible] the second offset impression cylinder [illegible]ms of the pair of auxiliary side frame me[illegible] [illegible]he auxiliary side frame members and adjacent the [illegible]ffset blanket cylinder, the second offset impression [illegible]der thereby being pivotable between a position, [illegible]cond offset impression cylinder surface, of offset [illegible] [illegible]n contact with a web passed between the second

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ROCKET MOTOR

ignor to Morton T

ity of resilient flexible wire ribs arranged in circumferentially spaced apart relationship about the axis of said g means, corresponding one ends of said ribs being id bearing means, and responding opposite atable roller at a place axis ng means inside each being sha etween said bearing means and said l opposite ends of the ribs to the

second roller supported for rotating with its periphery in tangential contact with said first roller along the length of material was of said second roller m with the periphery of said first

Industrias Quimicas Ltda., Parana, Brazil

Continuation-in-part of Ser. No. 690,879, Jan. 14 application May 8, 1986, Ser. No. 860,90

The portion of the term of this patent

forming a hinge being U deflagratel

T MOTOR PROPELLANTS WITH LATED STRUCTURES EMBEDDED IN TO PROVIDE VARIABLE BURN RATE CHARACTERISTICS

Jr., and Tonuo Sato, both

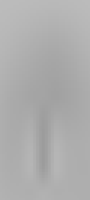
PROJECTILES

ennart Johansson; Arne Franzen, and Bo Bo all of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Oct. 22, 1981, Ser. No. 313,925

ity, application S

Int. Cl.⁴ F



ssignors to AVCO

Filed Aug. 11, 19

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llecting space; and

llecting cleaned gas from said

fugal separators

IR CURTAIN INCINERATOR

eet, P.O. Box 95-200, Stuart, Fla.

reduce the am

ing and increase the t

ANSPLANTIN

Box 45995, H

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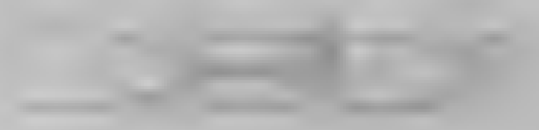
ts, a plurality of transversely spaced endless belts
g an upper and a lower run, the lower run lying
rface of said feed table and for e
rotatably mounted on said first
surface of said belt, a support
said second shaft and
r and lower runs of said
ly mounted on said third shaft and lying
le bar, a rear guide roller rotatably moun
ft and lying behind said needle bar, a
said fifth shaft and engaging the inner
d front and rear guide rollers engaging
upper run of said belt to guide said up
and below said ne
lts so that the
ds the rear of

[illegible]

nguro Sano, Tokyo, Japan, assignor to Janome

[illegible]

NG SYSTEM FOR [illegible]
LIKE
[illegible] Frank, Rockford, Ill., assignor to Sund
on, Rockford,
Filed Dec.



[illegible]

IFTING STRUCT

[illegible]

g said first propeller; ar
upported by and extend
a first side of said first
ler, said hydrofoil wing b
said propeller at a heig

ELASTICALLY DEFORMABLE [illegible]
[illegible] Kobe, Japan, assignor to Sumitomo R
tries, Ltd., Japan
tion of Ser. No. 731,543, May 7, 1985, abandoned
application Feb. 27, 1987, Ser. No. 20,20
, application Japan, Ma
Int. Cl.⁴ B63B 59/

ender, comprisin
having a substan

pporting sections extending direc
side of said impact receiving se

Britannic Majesty's Government of the United
Great Britain and Northern Ireland, London, E
continuation of Ser. No. 89 ,363, Jul. 29, 198
which is a continuation of Ser. No. 40 ,54, Ju
abandoned. This application Mar. 23, 1987, Ser

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g, Melamed, both of

Jones, both of

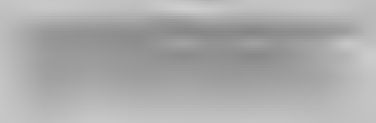
EATING STACK

nbe, South Kingstown;

Newport, and Steven G. Parks, Middletown, all of

gnors to Raytheon Company, Lexington, Mass.

ntinuation of Ser. No. 537,142, Sep. 29, 1983, abandoned



Joseph L. Buscov, Reston

Maser, Warren Township,

led Jan. 21, 1987, Ser. No. 5,6

port with said

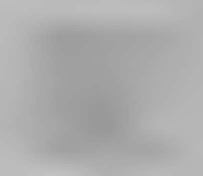
coating orifice

and an outlet port where

passages terminate at

Norick Yarun

Continuation-in part of Ser. No. 673,956, Jun. 26



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ment

GATE FOR

ay, Bienne, Switzerland,

Filed Jan. 2, 1986, Ser. No.

members dispos

tion pushed by

tor actuated

red a predeterm

OMATIC PET FOOD FEEDER

by at least three sloping platforms

said housing in a zig zag manner,

atform means comprising a holding platform

ending slopingly downwardly from one side

l housing towards an opposite side wall and

orm means spaced below said m

extending slopingly and downw

l to said dispensing ope

eans mounted at said m

n means being operati

CONTROL ARRANGEMENT FOR
OF AIR-LIQUID-COOLED INTERN
ENGINES, PARTICULARLY MOTOR VEHICLE

Axel Temmesfeld, Bad Fellbach, Fed. Rep. of German

signor to Bayerische Motoren Werke A.G., Munich, Fed

of Germany

PCT No. PCT

Date Oct. 1, 1986, P

Date Jul. 3, 19

Noguchi, Kobe, all of Japan, assignors

Kabushiki Kaisha, Kobe, Japan

application of Ser. No.

This application

priority, appli

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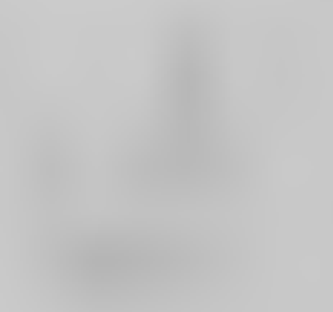

[illegible]

HYDRAULIC VAL
INTEGRAL PLUNG
, Rochester; Donald G.
th of N.Y.; Richard S. Knane, Grand Rapids,
ein, Birmingham, both of Mich., a

[illegible]

IGNITION LEAD ARRANGEMENT
Riedstadt, Fed. Rep. of Germa
General Motors Corporation, Detroit, Mich.
Filed May 4, 1987, Ser. No. 45,441
Claims priority, application Fed. Rep. of Ger

dividual, parallel flat
ws laterally into each
g sockets are constructe
ngement and covered
ignition leads

FOR INTERNAL
ENGINE
Ieshima, and Na
Hiroshima, Japan, assignors to Mazda

Filed Jan. 21, 1987, Ser. N

[illegible] are being conn

ion, said valve means be

uding the junction portion, said va
forming a second passage between the fi
ports, the second passage comprising
second passage means which are downstr
rating passage means and the communi
itself, the second passage having a le

COMBUSTION
achen, Fed. R
FEV Forschungsgesellschaft für Energietechnik
ungsmotoren mbH, Aachen, Fed. Re of Germ
visdon of Ser. No. 832,435, Feb. 24, 1986, Pat. N
This application Jun. 8, 1987
Claims priority, applic

[illegible]

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Fed. Rep. of Germany, assignors to VDO

AG, Frankfurt am Main, Fed. Rep. of Ger-

Ser. No. 799,182

Tadashi Terazawa, Toyota

to Aisin Seiki Kabushiki Kaisha,

Filed May 6, 1987, Ser. No. 46,452

MANIFOLD OF

COMBUSTION ENG

Zola Predosa, and Gianni

both of Italy, assignors to Weber S.p.A.

Filed Sep. 29, 1986, Ser. No. 922,

alve, and said valve forming means for delivering prede-
termined quantities of fuel to said downstream region,

projection (15) integrally formed with s

nding laterally from said valve,

fuel pressure regulator (5) mounted to

first axis,

pressure regulator being respon

upstream of said valve and having a bell-shaped

deformable diaphragm (8) confined be-
tween said housing and said projection, said diaphragm
defining, with said housing, a first chamber (10); and
defining, with said projection, a second chamber (11),

chamber being

downstream reg

fuel passage opening

an elongate rectilinear first passage

projection in generally coaxial relationship with said she
er member, and with said first passage extending gener
ally parallel to said second axis, said first passage exten
ing between said se
upstream of said val

ear second passage (3

spaced from and general

fuel suppl

on and com

first passage (29)

and a fuel discharging fe

said projection and commun

Rochester, and Carl H. Sherwood, Brock

manifold and an adapter for

rail, said pressure regulator

g a fuel chamber adapted

adapter to receive fuel

g a fuel discharge passage

a valve seat in said discharge passage through whi
from said chamber to said discharge passage, a
diaphragm closing said chamber, a valve member p

hragm to control fuel flow through said

ming a pressure chamber with said dia

er having a pressure passage adapted f

pressure passag

the pressure

fuel cha

said fuel chamber and ma

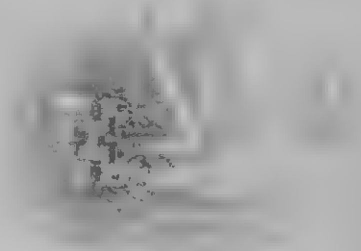
er and position said valv

diaphrag

chamber into a

and said diaphrag

base housing an



assignors to Nippon Soken, Inc., Nishio, Japan

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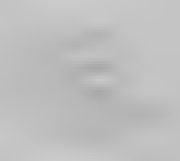
r Company, Dearborn,



magnitude of said voltage signa
ermined voltage range and for

JSTION ENGINE

ilderu; Wilhelm Wagner, Stuttgart, an Friedrich Scherer, Unterensingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Nov. 17, 1986, Ser. No. 931,07

priority, application Fed. Rep

FUEL INJECTION APPARAT

; Yoshio Kuroda, and Kiyotaka Oga

Filed Feb. 20, 1987, Ser. N

Nakayama; Osamu Aoki; Shigetoshi Nishijima; Haruo Horiuchi, all of Saitama, and Takuya Sugino, Tokyo, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 28, 1986, Ser. No. 845,65

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arlington, 3650 Darton Rd., Hale, Mich. 48
in part of Ser. No. 728,995, Apr. 29,

ring associated at each

groove from a
sheave groove

CHAMBER

Gerhard Siedel, Ansbach, Fed. Rep. of Germany, assignor to
Fritz Barthelmes KG, Heidenheim-Oggenhausen, Fed. Rep. of

Filed Nov. 15, 1982, Ser. No. 441,4

mprising a hand gr

of said tubular chamber
wall of said housing

pelled by said compressed a

ACHINING B
BUILDING MATERIAL

Niederwil, Switzerland, assignor
St. Gallen, Switzerland
led Nov. 6, 1986,

feed motor is controllable by
the resistance at the machin-
osed between the hydraulic

TING PAD W
G PERFORATIO
FERENT HEAT-GENERATION LE

Pistella, Kenosha, Wis., assignor to Hype
es, Inc., Kenosha, Wis
tinuation-in part of Ser. No. 941,3
ed, which is a continuation-in-pa
abandoned. This applicati

Marion H. Ewers, 300 S. Broadwa
Continuation-in-part of Ser. No
application Jul. 6, 19

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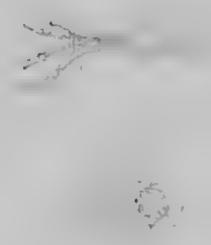
[illegible] Trane, 8023 Shellie Ln., Boise, Id. 83705
continuation of Ser. No. 669,992, Nov. 7, 1984, P
995. This application Mar. 7, 1986, S
portion of the term of this patent subse



Filed Sep. 26, 1986, Ser.

abandoned. This application

4,75

FRAIN

Peter J. Motolik, 353 Benjamin Rd., and Scott
Benjamin Rd., both of Winchendon, Mas
Filed Sep. 23, 1986, Ser. No. 910,

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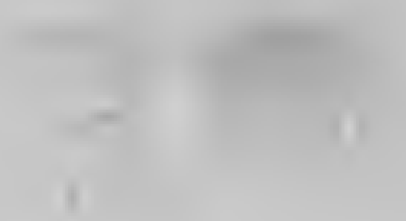
4,7??,?A?
...AND AN EL...
...STEM FOR THE...
...ANSMISSION FROM INSIDE THE MAS...
...bach, Langenzersdorf, Austria, assignor t...

[illegible]

4,756,30?
ENDOSCOPE FOR REMOVAL OF TISSUE
...Ernst Sachse, Lerchenstr. 55, 8500 Nuernberg,
Rep. of Germany; Rainer E. Sachse, 72...
Fla. 334...
Filed Feb. 14, 1986, Ser. No...
Claims priority, application Fed. Rep. of Ge...
1985, 350...; Feb. 25, 1985, 350...
Int. Cl.⁴ A61B ...

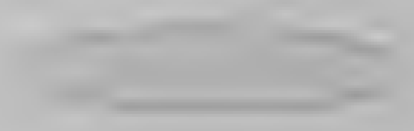


[illegible]

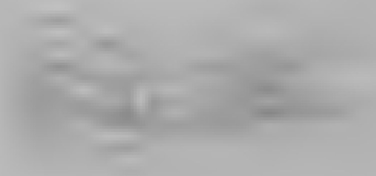
[illegible]

...and one space
...ing a vessel, ...
...ding the ves...
...ace adapted to
...ding from the fi...
...econd space ada...

[illegible]



Technology, Inc., Portland, Oreg.
Continuation-in-part of Ser. No. 59...



[illegible]

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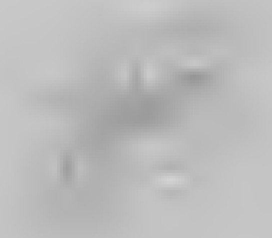
'0_,001, Oct. 28, 1985, a
of Ser. No. 529,776, Sep. 6, 1983

CIGARETTE MANUFACTURING MAC
AUXILIARY TOBACCO FEED
ccardo Mattei, Bologna; Bruno Belvederi, Mon
and Franco Ghini, Bologna, all of Italy, assigno



4,756,317
MATION PREPARATION SYSTEM
Va., assignor to Hallmark Financ-

504,406, Jun. 15, 1983. This a
1986, Ser. No. 86

R. J. Reynolds Toba

Tokyo, Japan,

Charles H. Heide, Kenosha, all of Wis., assignors
Marine Corporation, Waukegan, Ill

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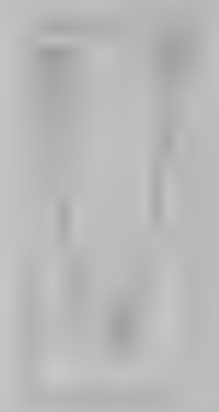
HE INITIAL CLEAN
RTZ, IT BE USED AS A
REACTION CHAMBER FOR THE PRODUCTION OF
INTEGRATED CIRCUITS
Philippe A. Lami, 22 Allee du Pre Blanc, 38240 Meylan, France
CT No. PCT/FR86/00069, § 371 Date Oct. 30, 1986, § 10
1986, PCT Pu

iled Mar. 4, 19
y application F

ond St., Yuba City, Ca

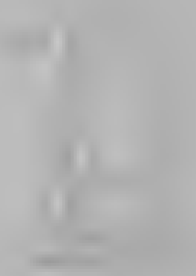


said housing n
g sealingly eng

TER, DISCHAR
FER PIPES

85/00186, § 371 Date Jul. 25, 1
986, PCT Pub. No. WO85/05

led Apr. 24, 19
pplication S



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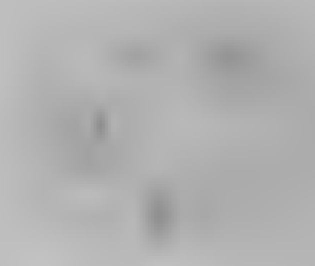
F THE INJECTION OF AN ADDIT
F METERED INTO A MAIN FLUID
gey Carignan, 33360 Latresne, France
d Jul. 28, 1987, Ser. No. 80,
application France, Jul. 31, 19

nded by the s
nding part of th

…nor to Zahnradfabrik Fri…
…rafen, Fed. Rep. of Germany



Continuation-in-part of Ser. No. 665,
abandoned. This application Jul. 2
Claims priority, application Fe
85, 35…; Japan, May 9, 19

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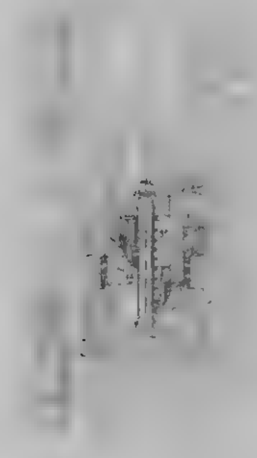
[illegible] ng adapted to be c[illegible] um fluid pressure i[illegible] retained and said outlet port being adapted [illegible] ed to a source of vacuum fluid pressure, [illegible] e seat formed as a part of one of said hous[illegible] rt, a valve me[illegible] mber and hav[illegible]

[illegible] m said oppose[illegible]

[illegible] ions, an annular inner [illegible]

[illegible] said inner ba[illegible]

[illegible] VE ASSEMBLY, IN PA[illegible]
[illegible] REED WATER REACTOR
[illegible] ret, Avon, and Roger Martin, Annonay,
[illegible] to Electricite de France, Paris, Fr[illegible]



[illegible] piston and the [illegible]

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UMI

yors to Pacast Corporation, Spanaway, Wash.

4,·86,·59
F IR.OGATION AND M ·Y·OD OF
RODUCING SAME
, Fehandens, Switzerland, assignor to M
, Switzerland
Filed Apr. 7, 1987, Ser. No. 35
application Switzerland

JACQUARED DOUBLE PLUSH FABRIC
ert Janssen, Xanten, Fed. Rep. of Germany, assignor
Glenoit Industries Ltd., Tel Aviv, Israel
inuation of Ser. No. 777,824, Sep. 19, 1985. This
Jul. 13, 1987, Ser. No. 72,9

up thread looped about the respective single weft, and

said weft yarn position at said inner sides being disposed in
ers alternatingly in said given direction of the floating warp
reads extending perpendicularly to said wefts, said weft yarn
pairs thereof at said outer sides bein
nd from each of the weft yarn pos
said given direction of the float

4,756,341
AND APPARAT
RESETTING WEFT STORAGE
DEVICE

Filed Sep. 4, 1986, Ser. No. 903,816
aims priority, application Japan, Sep. 4, 198
p. 4, 1985, 60-
35, 60-

said storage drum and to

SNS INTO THE SHED OF A WEAVING MACHIN
l Angelianlt, Riedisheim, France, and Albert M
Materiel Textile, Mulhouse, Fra
Filed Dec. 23, 1986, S

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4,756,545

IF PRODUCING HANGING MEMBERS
FOR PACKS OF SHEETS

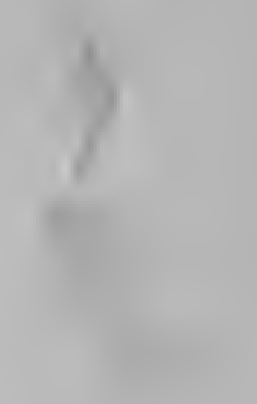
Iratch Boyadjian, Obstgartenstrasse 8, CH-8

Continuation-in-part of Ser. No. 642,500, Aug
abandoned. This application Feb. 13, 1987, Ser. No. 14,66
Claims priority, application Switzerland, Aug. 26, 198

the hanging strip

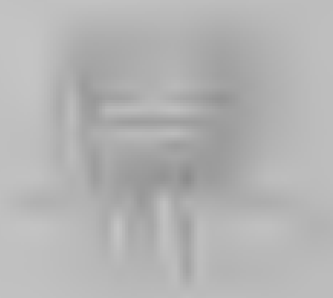
OF MULTIPLE GRADIENTS

Radosevich, Chicago, Ill., and Steven Barclay,
Ill., assignors to The United States of America



NSING VAL
PACKAGE

both of Calif., assignors to Jopado Baderi, Saratoga, Calif
Continuation-in-part of Ser. No. 799,436, Nov. 19, 1985,
abandoned. This application Jan. 17, 1986, Ser. No. 820,



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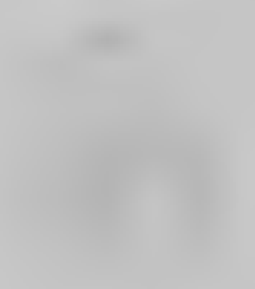
continuation-in-part of Ser. No. 805,387, Dec



continuation-in-part of Ser. No. 16,9

[illegible]

PNEUMATIC TIRE TREAD WITH DIVIDED SHOULDER

Hiroshi Ogawa; Kenichi Motomura, both of Higashiyamato; Yukimasa Yamada, Mamoru Mamada, and Hikaru Tansei, all of Kodaira, all of Japan, assignors to Bridgestone Corporation

Filed Apr. 2, 1986, Ser. No. 847,260

Int. Cl.⁴ B60C 11

[illegible]

LOW ROLLING RESISTANCE TIRE TREAD

Karl-Heinz Nordsiek, and Helmut Schwedg, both of Marl, Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Feb. 20, 1987, Ser. No. 16,958

Claims priority, application Fed. Re

[illegible]

AIN VEHICLE

[illegible]

member attached to said term

[illegible]

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FROM MOLTEN M
ill, and David L. Jones
both of United Kingdom, assignors to Foseco
Limited, Birmingham, England

OVING-MOLD TYPE
TING MACHINE
abeko Fukase, Tokyo; Kunio Matsui, and Yutaka Tsuchida
both of Yokohama, all of Japan, assignors to Ishikawajima
Harima Jukogyo Kabushiki Kaisha and Nippon Kokan Kabu
shiki Kaisha, both of, Japan
Filed May 19, 1987,

air of spaced
aced apart fro

D DEVICE FOR CONTROLLING THE
LING A CONTINUOUS
Volleran; Kurt Buxmann,
tats, Sion, all of Switzerland, assignors to S
Ltd., Chippis, Switzerland
Filed Dec. 2, 1986, Ser. No. 936,

trol of the rate of cooling by
cooling capacity, comparing the
th reference values for a required
capacity, and influencing at least one of coolant composition
and the amount of coolant per unit time with a view to matching up with said reference values, said cooling capacity mea
mprising measuring the
has not been in contact
with the ingot
ous casting unit having control elements
one of fluid coolant composition and qua
nd coolant released per unit time and featuring a
facility for carrying out a process for controlling the
cooling an ingot emerging from a continuous casting
prising at least one body (1) exhibiting good thermal
at least one coolant nozzle (2) connected to a
er (3) and directed at a measuring point on said
least one body; a heating device (4) that acts upon said point
on said at least one body (1); at least one temperature sensor (5
5') situated under a surface of the body (1) at the measuring

al, Yuma, Ariz., assignor to A

ter to be rever
mounted by a

AUXILIARY AIR CONDITIONING, HEA
ENGINE WARMING SYSTEM FOR VEHICLE
J. Rex Greer, Lubbock, Tex., assignor to Pony Pack, In
Sumner, N. Mex.
Continuation-in-part of Ser. No. 869,607
982,649. This application May 4, 1

engine and a heat ex
immediately adjacent the auxiliar
hot exhaust gases ther
d within said ch
exhaust gases

auxiliary
ard and to

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UMI

HEAT EXCHANGER

Mitsuo Kudoh, Tsuchiura; Takuji Torii, Ushiku; Seigo Miyamoto, Katsuta; Yoshitomo Sawahata, Hitachi; Mizuho Yokoyama, Katsuta; Masaru Takenouchi, Tsuchiura, and Yoshifumi Kunugi, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 12, 1986, Ser. No. 895,84

Priority, application Japan, Sep. 6, 198

Int. Cl.⁴ F28D 1/04

exchanger cha
grouped in a lou
ond fin base, adjacent
n base line is an even

maximum raised height a

son, II, Houston, and Terrell E. Dailey
assignors to NL Industries, Inc., New
Filed Jan. 15, 1987, Ser. No. 3,5
Int. Cl.⁴ E21

Jon B. Christensen, Harold K. Beck, and Vincent P. Zeller, all of Duncan, Okla., assignors to Halliburton Company, Duncan

case adapted for attachment to said lower test
portion and having a longitudinally central open
through with at least one transverse port theren
flow tube disposed in said central open
uch that said case and said flow tube de
lly annular flow passageway therebet
cation with said packer;
mandrel reciprocably disposed in
and movable between an open and a closed position
l mandrel defining a bypass passageway therein fo
nding communication between said flow passageway
nulus when in said open position,
n upper portion adapted for atta
ng string portion and a lower p
ssageway above said ma
first position and a sec

wer portion of said pistor
tandrel in said closed posi
said second position, whe

on and a relea
r biasing said
tching position
ting tool comp
an upper test

packer bypass compris

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ETHODS USING A
ED WORKOVER MAST

eter F. Maroney, Bixby, Okla., and Frank C. Blalock, Br
don, Miss., assignors to Crane Carrier, Co., Tulsa, Okla
Filed Mar. 10, 1987, Ser. No. 24,25

object from a well by

at a controlle

y Yee, both of Tulsa, and John P. Seidle, Je
assignors to Amoco Corporation, Chicago, Il

coal seam and injecting natural gas into the coal seam through the at least one well at a pressure higher than coal seam pressure but lower than fracture pressures of imme

r below the co

ETHOD FOR DRAWING UP SPECIAL CRUDE OIL

Yoshiaki Ikuta; Masayuki Moriwaki, both of Tokyo; Masato Kaneko, Hiroshima, and Hisazi Matsui, Osaka, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo and Osaka Gas Company Limited, Osaka, both of, Japan
Filed Jan. 13, 1987, Ser. No. 2,868
Claims priority, application Japan, Jan. 13, 1986, 61-
Apr. 16, 1986, 61-86162

METHOD OF VISCOUS OIL RECOVERY

el R. Jennings, Jr., Plano, and Edwin T. Strom, Dallas, b
f Tex., assignors to Mobil Oil Corporation, New York,
Filed Nov. 2

White Plains, N.Y.
Filed Apr. 6, 1987, Ser. No. 34,

a sulfonate surfa

PPARATUS

Filed Dec.

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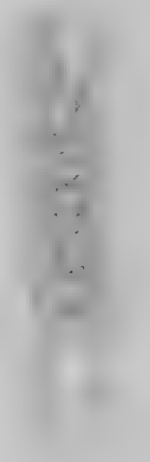
bular hous
it and second perforations in earth
using where the first and second
o the earth formations from first
gs in a casing
rforation openi

tubular housing aligne

r Technology Corporation, Houston, Tex.
of Ser. No. 918,467, Oct. 14, 1986, abandoned.
This application Sep. 17, 1987, Ser. No. 99,083
Claims priority, application France, Oct. 18, 1985, 85 15490
Int. Cl.⁴ E21B 34/14

31 Claims
aining a fluid

an integral portion the
being actuated to close
well fluid, wherein said
comprising first and
ving respective vari-
s-sectional areas, sa
r and being filled
he first assembly



THE SAME

niar, both of Spring, all of Tex., assignors
land, Ohio
Filed Dec. 23, 1986, Ser. No

OAD SENSING DEVICE
Michigan, Hastings, Mich. 49058; Robert L. Munn, 10798 Montcalm Ave., Freeport, Mich. 49325 and Henry A. Thenikl, 1881 Bachman Rd., Hastings, Mich

bstantially C-shaped, in cross section, frame
g upper and lower legs extending along longitu-
nal axes of said frame member and said device comprising a
nsing means operable between said frame and said drivetrain
id for detecting an alteration in distance between said frame
d said drivetrain when a load is exerted on said
nometer means responsive to said sensing means
an alteration in distance detected by said sens

MOTOR-DRIVEN POWER STEERING AP
Tsutugu Ishikura; Nobuyoshi Onuma; Shigeki
Hiroyosi Sakurai, all of Katsuta, Japan, assignors
Ltd. and Hitachi Automotive Engineering Co.,
Tokyo, Japan
Filed Jun. 4, 1986, Ser. No. 870,75
application Jap

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POWER STEERING SYSTEM FOR VEHICLES

daira, Tochigi, Japan, assignor to Honda Giken Kogyo
saiki Kaisha, Tokyo, Japan
ation of Ser. No. 798,270, Nov. 15, 1985, abandoned.
his application May 22, 1987, Ser. No. 53,577
riority, application Japan, Nov. 16, 1984, 59-241

t signal from said torque detecti
based on said output signal fro
ude signal representing
e acting on said steer-

eedback signal, and said differential am
said torque magnitude signal from said

COMPOUND ENGINE

Hideo Kawamura, Samukawa, and Katsuyuki Tamai, Yokohama, both of Japan, assignors to Isuzu Motors Ltd., To
Division of Ser. No. 920,133, Oct. 17, 1986. This
Oct. 23, 1987, Ser. No. 111,68
Claims priority, application Japan, Oct. 19, 19

or according to the speed

ED THROUGH ADJ
ROTTLE VALVE OF AN

ra Takei, Zama, Japan, assignor to Nissan M
Limited, Yokohama, Japan
Filed Mar. 18, 1987, Ser. No. 27,393
priority, application Japan, Mar. 20, 1986, 61-64359
Int. Cl.⁴ B60K 31/04

(d) fou
the

e opening angle by the eighth
ning angle derived by the se

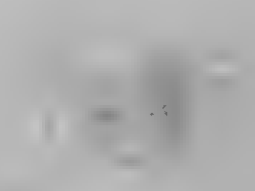
means and the actual opening angle detected by the third
means reaches the target opening angle derived by the

MOTORCYCLE

Akio Kawano; Kentaro Kato; Kenji Honma, and Keiji Ono, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 3, 1987, Ser. No. 57,766
Claims priority, application Japan, Jun. 4, 1986, 61-129644
1-198648; Aug. 25, 1986, 61-1291
Int. Cl.⁴ B62K 21/02 25/16

having an engine block,
ont wheel steering knuckle dispo
front wheel and by which an axl
rotatably supported,
upper swing arm having a
aid knuckle and a rear end pivotally couple
id engine block, said upper swing
said knuckle and said engine bl
arm having a front end pivotally coupled t
and at least one rear end pivotally coupled to
on of said engine block, said lower swing arm

Kenji Uehara, Tokyo, Japan, assignor
Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 23, 1987, Ser. N
Claims priority, application Japan, Ju



spaced from and below the seat, a
an air cleaner below the seat and spa

LL DRIVE TRANSMISSION

, Maurepas, France, assignor to Re
des Usines Renault, Boulogne Billancourt, Fra
Filed Feb. 2, 1987, Ser. No. 14,85
Claims priority, application France, Jan. 31, 1

ondary shaft and b
and said sun gear;
rear drive shaft co

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NHANCED DISPOSE AL
QUENCIES

JUSTABLE BOSHM

heater and ha

the th

4,756,384

COLLAPSIBLE SUPPORT

p a pair of generally
ring each of three parts
m a focal pointwith each adjacent part
ipying a plane different from the plane
ther parts, spring biased fastening means
en end of each bracket part, four tubu
iably secured at their top end to four
y means of said spring biased fastening mea
sular stringer detachabl
emaining bracket conn
ed along its length and spaced from each ot
secure and support another member thereto, a
g between the tubular legs being detachably

bular leg, and each telescoping membe
qually spaced holes any one of which
ent with a corresponding hole in sa

R SAW BENCH

Hal L. Den … ector, 233 Broadway, RM 3815,
and George Spector,
York, N.Y. 1006
iled Jul. 30, 1987

tantially parallel spaced apart legs ext
ir crossbar and a first brace extending b
pair of legs,

b) a second part having a second elongated crossbar, a second pair of substantially parallel spaced apart legs
ing from the second crossbar and a second brac
ng between the second pair of legs,

ir of hinges spaced apart and connecting said first elongated crossbar to said second elongated crossbar to accommodate pivotal movement of said first and second parts between a first position in which the legs of said parts abut and are substantially parallel and a
position in which the cross bars of said parts abu
the legs of said parts are in alignment with each other,
first and second positions can be used for storage.

d) means for selectively preventing pivotal movement
said first part relative to said second part so as to keep th
first pair of legs in a spreading position relative to th
second pair of legs to support a load on the crossbar
n said pivotal preventing means includes a p
ich of said arms pivotly connected to and
one of the second pair of legs to one of th
egs to be removeably connected thereto, further
ing means for adjusting the spreading position of
t pair of legs relative to the second pair of legs to
change the overall height of said sawhorse, wherein said
adjusting means includes,

f) each of the first pair of legs having a substantially vertic
d side slot with a plurality of spaced apa
esses therein and a pair of elongated doubl
each of which runs parallel on one side of the slot
f the second pair of legs having a substantially
elongated side slot with a plurality of spaced apart
oversized recesses therein and a pair of elongated double
bevel wedges, each of which runs parallel on one side of
he last named slot,

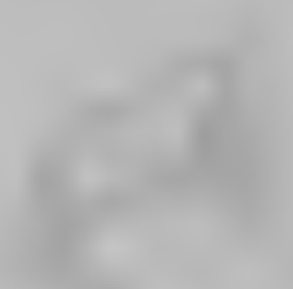
g) each of said arms having a pair of double bev
surfaces on each end thereof so as to normally ma
the double bevel wedges, and

air of inwardly spring biased stop bolts e
s disposed on one end of each of said arms
with one of said oversized recesses in one of said
reby when the first and second pair of legs are
gether said stop bolts will move up and out of the
llowing said arms to move for adjustment and

4,756,386

LLAPSIBLE SUPPORTS

rgil Blanchard, Rte. 4, Park Rapids, Minn. 56470
Filed Mar. 4, 1987, Ser. No. 21,69
Int. Cl.4 B27B 21/00



ing there

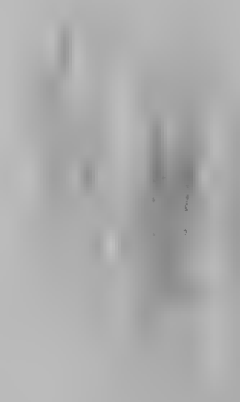
pair

said legs of said second pair disposed opposing c
and said legs of said first pair disposed oppos
her, said first ends of said legs
id first cross bar for opposing
way from one another
mediate support
end of said first

erefrom to a second end with said sec
pport disposed between said support le

said first and second intermedia
leasably holding said second end
paced apart alignment and including
ond rigid braces respectively associated with said fi
second pairs of legs, a first end of said braces pe
secured to one of said legs and means for releas
taching
said brac

Gerd Grass, Tustr. 16, D-4930 Detmold
Filed Jan. 30, 1987, Ser.
1986, 3602770



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k panel of said load receiver, and a motor-

…ten, Espoo, Finland, assignor to …
…tata, Switzerland
…iled Mar. 16, 1987, Ser. No. 26,00…
…application Finland, May 29, 198…

…ns being inclin…

4,756,389

…ETECTING A POSITION OF
…A HYDRAULIC ELEVATOR

…azuhiro Sakata, Katsuta; Yoshio Sakai, Naka; Tsutomu Sa… and Yoichi Ono, both of Katsuta, all of Japan, assignors … Hitachi, Ltd., Tokyo, Japan

Filed Jul. 29, 1987, Ser. No. 78,99…

Claims priority, application Japan, Aug. 1, 1986, 61-179989

Int. Cl.4 B66B 3/02

…ulses generated

…cterized in that

4,756,390

…EMOTE BRAKING SYSTEM

… Meadows, 804 Bunny Rabbit Rd., Athens, Tex.

Filed Jul. 15, 1987, Ser. No. 73,6…

Int. Cl.4 B60T …

…rring brake application forces from the vacuum

…ember operably connected to the master cylinder …ferring brake application forces to the master … the first and second members being operably … to transfer brake application forces from the …ooster to the master cylinder when the towed … is independently operated; and

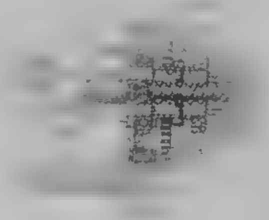
…s for inducing a pressure differential between the first … second chambers of the actuator cylinder in response … the application of the brakes of the towing vehicle … rce on the piston, which in turn … ond member to apply the brak…

…RAKE SYSTEM ACTUATOR WITH A RETURN SPRING

Paul D. Agarwal, Troy, and Robert J. Hammersmith, Rochester Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 6, 1987, Ser. No. 69,87…

Int. Cl.4 B60T 8/42



…early

…ting with said chamber, said inlet port being … selectively receive brake fluid and introduce … said chamber, said outlet port being adapted to … munication with a brake fluid pressure

…ectric motor having a rotatable … atable drive transfer means connected … ember and having a linearly movable … nber connected with said piston, said … otary … ansfe…

…inear direction in said bore to decrease the … said variable pressure chamber and therefore … brake fluid therein.

…lly preloaded spring conn… …ler means and continu… …inear direction in said b… …e of said variable pressure chamber and there… …ecrease the brake fluid pressure therein, said

4,756,39…

…RAKE ROT…
…DISK BRAKES

… E. McMurray, Weber City, Va., a… … Inc., Blountville, Tenn

…ed Nov. 26, 1986, Ser. No. …

…heel for rotation therewith about a hub axis, a disk … cted to said hub and defining substantially planar a… braking surfaces on opposite axial sides thereof f… contacting the rotor-contacting surfaces of th… provide the braking force, said hub and disk be… formed of stainless steel that has a minimum tensile stre… about 120,000 p.s.i. and Rockwell Hardness of from about … about 42, and a plurality of spaced-apart depressions p… on said braking surfaces and being dimensioned and arra… so that the rotor-contacting surfaces of the pads cross a… one of said depressions on said braking surfaces at substa… all points on the rotor-contacting surfaces of the pads du… rotation of said rotor about said hub axis, whereby metal … is deformed on said braking surfaces or is separated the… as a result of frictional contact between the rot… surfaces of the pads and said braking surfaces

4,756…

APPARATUS FOR VARYING THE DAMP…
CHARACTERISTICS OF A SHOCK ABSORB…

Ronald Collée, Rotterdam, Netherlands; Johannes De… Ennepetal, and Marwin Kinzl, Lüdenscheid, both of Fe… of Germany, assignors to Iku Holding Montfoor… foort, Netherlands; August Bilstein GmbH & … petal and Leopold Kostal GmbH & Co. KG, … of, Fed. Rep. of Germany

Filed Aug. 18, 1986

Claims priority, applicatio…

…and an ad…sting … for rotation rela…

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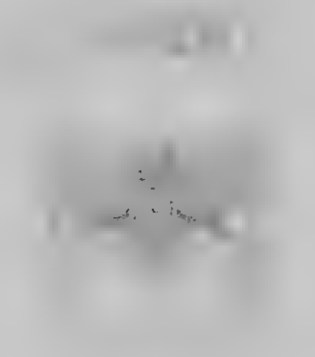
a first pair of arms con
ted reducer for rotation



ing through the

ARTMENTS

ndoned. This applicatio

tter of said bottom of said
ting said collapsable bag on

orn of said cas
e rolled along a
llapsable bag is mounted on top of said case; and han
s attached to one side of said case for carrying said ca
said collapsable bag is not in use

OVERRUNNING CLUTCH WITH CONTROLLED SPR
ACTION

Thaddeus F. Zlotek, Center Line, Mich., assignor to Dana C
poration, Toledo, Ohio
Filed Dec. 3, 1985, Ser
Int. Cl.⁴ F16D

gs carried by a retainer in the ra
er race and the outer race and r
he inner race in one direction fo
uter race, and responsive to rota
the opposite direction for nondriv
he outer race; and
means, cooperative with the ret
hydrodynamic drag associated w
inner race in the opposite direction,
sprags out of surface contact with the inne
thereby reduce sprag wear, said actuator means
an annular member carrying a plurality of circum
ally-mounted tilting pads, each
l in close proximity to the inn
r face spaced radially from the inner rac
tacting lubricant thereon, and further hav
mbers for contacting the sprags in response
of the tilting pads with fluid
e, to move the sprags out

Akira Nagashima, Kawasaki, and Junichi Hiraizumi, Tokyo,
both of Japan, assignors to Kioritz Corporation, Tokyo, Japan
Continuation of Ser. No. 885,340, Jul. 10, 1986, abandoned,
which is a continuation of Ser. No. 647,426, Sep. 5, 1984,
abandoned. This application May 12, 1987, Ser. No. 49,810
Claims priority, application Japan, Sep. 6, 1983, 58-137934[U]
Int. Cl.⁴ F16D 43/18

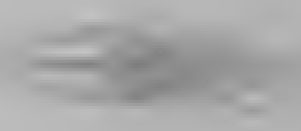
which extend

ral side on the opposite side from said first side of said
e member and a second lateral side on the side oppo
said first lateral side, and being formed with a recess in
said first lateral side for allowing one of the projections of
the drive member to be slidably engaged therein, each of
said intermediate members having a radially outward
surface and being mounted on a respectiv
ojections for movement therealong radi
wardly into frictional engagement of said radially
outward peripheral surface of each said intermediate
member with the driven member,
single annular helical spring centrally mounted in a manner
to extend through transverse grooves formed in said first
lateral sides of the intermediate members to bias the intermediate members radially inwardly, wherein, when the
rotational velocity of said rotary shaft and drive member
is sufficiently large, said radially outward movement of
said intermediate members occurs along th
projections of said drive member against th

h by

recess and said ar
aid intermediate membe
te extends being recess

ELECTRICAL DETECTOR OF OPER
Jean Deligny, Le Mans, France, assignor to Soci
du Mans, Le Mans, France
Filed Feb. 6, 1986, S
Claims priority, application Fra
Int. Cl.⁴ F0



said movable conta

abo

J. Watanabe; Shigeo Matsueda, and Shigenaro
of Inazawa, Japan, assignors to Mitsubishi De
Kaisha, Japan
Filed Apr. 22
priority, applica
85, 60-13

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r of said
ans for transp

R THE SORT
ARTICLES

ele Ticata, Teramo, Italy, assignor to Meccanizzazione I

ntinuation of Ser. No. 704,446, Feb. 22, 1985, abandon
This application Sep. 22, 1986, Ser. No. 910,306
laims priority, application Italy, Feb. 24, 1984, 19781 A
Int. Cl.⁴ B65G 47/56

units arranged
ng articles along
nits including
lless, longitudinally spaced apart conveying
d lengthwise adjacent each other and
on along which the
ud belts being posi-

and second rollers having a sl
ed portions extending axially therethrough;
means for driving said rollers;
two spaced apart side members extending perpendicularly to said first and second rollers and to which said end portions of the shaft of said first roller are mounted for rotation, each of said side members having a slot associated with each conveying belt and extending substantially vertically therein for guiding the oscillating movement of said conveying belt, through which slot the respective end portions of said second roller are mounted, said slot arcuate configuration whose radius is determine axis of rotation of the shaft of said first roller; a
means associated with each of said conveying belts for oscillating said conveying belt between a horizontal position in which articles are conveyed to the next adjacent convey lischarge position in which the articles are a receiving apparatus, said oscillating at least one L-shaped member having a nd said second ro icularly from sa llating movement of L-shaped memb around the shaft

4,756,40

PACKAGING MACHINE

Masao Funo, Kurihashi, and Hayao Maeda, Kitamoto, both of Japan, assignors to The Japan Tobacco Salt Public Corporation, Tokyo, Japan
ntinuation of Ser. No. 705,200, Feb. 25, 1985, abandoned.
This application Apr. 6, 1987, Ser. No. 35,242
laims priority, application Japan, Jul. 17, 1984, 59-146392
Int. Cl.⁴ B65B 47/

6 Claims

intermittently feeding
accumulation packaging machine, sai
em disposed between a product discha
determined product feeding speed, an
nulation packaging machine, sa
prising in sequence
ding means, having an axis ex
nal direction and being
l product discharge sec

erred and tr

intermittently feeding a plurality of said products to said accumulation packaging machine in said contiguous row-like arrangement;
said push conveyance means comprising product guide means, operably connected to said acceleration feeding means, for slidably supporting products received from said acceleration feeding means and forming said products into a contiguous row-like arrangement, said product guide means having a first end adjacent said acceleration feeding means and a second end remote from said acceleration feeding means, said product guide means comprising at least one pair of horizontal parallel rails extending in said first longitudinal direction, each of said rails engaging at least a portion of a bottom face of a product supported thereon and each of said rails engaging an end face of a product supported thereon, at least a portion of one of said rails being horizontally movable toward and away from said other rail, said product guide means being support able of a first plurality of said products in said contiguous row-like arrangement intermediate said first and second ends, said first plurality of said products comprising a second plurality of said products adjacent said second end of said product guide means and a third plurality of said djacent said first end of said product guide second plurality of said products and said y of said products being adjacent to one ther, said product guide means and said acceleration feeding means cooperating to slide said products along said product guide means in response to the transport of products along said acceleration feeding means to said product guide means, product separating means, operably engageable of said second plurality of said products supported by said product guide means, for int transporting said second plurality of said pr direction transverse to said first longitudinal di f said accumulation packaging machine; and ning means, releasably engageable of said ty of said products supported on said product guide means, for temporarily holding said third plurality of said products in place to prevent sliding movement of said products along said product guide means, said product retaining means comprising said horizontally movable portion of said one of said rails and actuator means operably connected to said horizontal portion for moving said portion of said one of said rails in resp tent operation of said product sepa actuator means comprising a shaft member, connected said horizontally movable portion of said one of said rails, reciprocally movable in a horizontal direction toward and away from said other rail and having a cam follower thereon, support means for supporting said shaft member for reciprocal movement toward and away from said other rail; first biasing means for yieldably urging said shaft member toward said other rail; latch means, movable a first position engaging said shaft member to a second position free of said shaft member, for preventing movement of said shaft member when in said first position and allowing movement of said shaft member when in said second position; second biasing means for yieldably urging said latch means to said first position, latch release means, operably connected to said accumulation packaging machine for reciprocal movement in a vertical direction between a third position and a fourth position and having a cam surface thereon engageable of said cam said shaft member, for releasing said latch movement from said third position to a fifth nediate said third and fourth positions, and haft member away from said other rail f said cam surface with said cam follo nt from said fifth position to said fo

operation of
tion feeding

OVERHEAD CONVEY

Thomas D. Kempton, Vienna, Va., assignor
ers, Inc., Waynesboro, Va.

track for
comprisin
means f
trans
above

SLIDE GUIDE FOR AIRCRAFT

John R. Bevins, Orlando, Fla.,
Chicago, Ill.

Filed Apr. 25, 1986, Ser.

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ffixed to said plate
surface as said first

and second link
notch when gi

FOR LOWERING AND LIFTING CONTAINERS
Shoichi Sasaki, and Toshikazu Nakayama, both of Yokohama, Japan, assignors to Kirin Beer Kabushiki Kaisha, Yokohama, Japan
Continuation of Ser. No. 827,232, Feb. 7, 1986, abandoned, which is a continuation of Ser. No. 617,347, Jun. 5, 1984, abandoned. This application Oct. 26, 1987, Ser. No. 113,29
application Japan, Jun. 10, 1983 58-88692

and

ing means and a lower container conveying
comprising
rotatable about a vertical axis and having a
guide recesses at its peripheral surf
ds longitudinally of the drum
container therealong
al guide means surrounding the rotary drum
relationship thereto so as to form predetermined
junction with said guide recesses, each said
for slidably holding each container
guide means and each guide recess of
ed support means disposed helically
al surface of the drum and the inner
guide means and extending from an

up and down on the inclined guide me
g up and down along each guide recess of
drum in accordance with the rotation of the d
and guide recesses being inclined from the vertic
extend in a direction substantially perpendi

FLIGHT CONVEYOR
Wilhelm Maag, and Paul Straub, both of Oberuzwil, Switzerland, assignors to Gebrueder Buehler AB, Uzwil, Switzerland
Continuation-in-part of Ser. No. 506,723, Jun. 22, 1983, Pat. No. 4,573,568. This application Aug. 27, 1985, Ser. No. 770,23
Claims priority, application Switzerland, Jul. 22, 19
80 82
The portion of the term of this patent subsequent to Ma
2003, has been disclaimed.
Int. Cl.⁴ B65G 19/24

1. A removable flight attachment for a f
having two sidewalls and an opening for receiving
ceding narrow shaft portion with said body por
ceding shaft portion being joined by said hinge b
through aligned apertures therein, said remov
nt comprising
a flight attachment adapted to receive at
of said chain links, said flight attachm
protrusions of predetermined length
respective chain link and including
a rest surface on said protrusion for engaging sai
trough and bridging said chain link,
a cross piece bridging the respective chain link a
necting both protrusions of the flight attachm
a bearing block on each lateral side of the resp
link, said bearing blocks being connected t
piece and said rest surface, said bearing bloc
face, and cross piece together defining an encl
for receiving said body portio
receive said narrow shaft po
of said body portion,
a bore in each one of said bearing bloc
hinge bolt, said bores being in alignm
and said aligned apertures,
wherein each of said protrusions inclu
a first inclined edge portion facing sai
forwardly inclined in said moving direction
mined angle relative to said trough, and
a main portion extending substantially perpend
trough, said edge portion and said ma
edge-free transition to form a curve

---

moment acting on said flight attach

4,756,405
ARTIST BRUSH BOX
aler, 1370 Crawford Ave., Upland, C
Filed Jun. 11, 1987, Ser. No. 60,580
Int. Cl.⁴ B65D 85/20

f and a lower half which when c
box for holding brushes, said hal
at one end for opening the halves w
t a second end about a first axis, each box hal
r surface,
unting rod secured to one of said box halves
jacent said box half second end, said mounting rod
ving brush securing means positioned thereon for se
ring a brush having a handle at one end and bristles at
e other end to said securing means at said handle end,
id securing means being rotatable about said mounting
l for positiong said brushes in a plurality of positions
a first position wherein said brusl
e of said box half planar interio
position wherein said brush bris
l box half planar interior surface

4,756,406
MONEY, TO
STAMPS
an F. Grounds, 104 Felsham Road, Putney
DQ, England
Filed Feb. 12, 1987, Ser. No. 13,77
Int. Cl.⁴ B65D 85/58, G07D 9/
0.5

aid portable collecting contain

or saving stamps pass, the feed memb
baffle which is positioned beneath th
from the slot by a pair of end wall mea
the slot; the baffle being such that it allo
ing stamps to pass through the s
ly portion whilst substantially preventing t
or saving stamps from being taken f
through the slot, the baffle having a pa
meet at an apex, the apex being centr
the slot and being such that it deflec
tokens or saving stamps down one
oping sides, a base of the baffle bein

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ference fr
means to

:de a seal for the housing means and the
t means for the space about the insert m
ousing means, and
d bore within the seco
ing the medicinal tablets
, securable to the hous

ond bore

d to be used t

-LOPED DISPLAY CARTON
of, Jackson, Miss., assignor to Manville Corpora-

sponding to the back s

nes connecting the front and back panel sect
ttom flaps thereof being substantially perpendicular
fold lines connecting the sections to each other and
h are substantially parallel to bo

he side panel sections to the bot
ding at an angle to said pl
being adjacent t
nt and back pa

4,756,409

CHANNEL DISPLAY TRAY

James R. Murray, Fairport, N.Y., assignor to Pennwalt Corporation, Philadelphia, Pa.

Continuation of Ser. No. 005,005, Jan. 20, 1987, abandoned. This application Sep. 28, 1987, Ser. No. 102,284

Int. Cl.⁴ B65D 5/22, 5/42

U.S. Cl. 206—45.34

1. A display tray for use along and against a shel
aid tray made from a unitary blank of clear stiff plast
rial for visually displaying a plurality of like products within
said tray, said blank being cut and scored to provide said tray

esser height than said rear pane
antially parallel relationship theret
parallel disposed side panels interconnecting said
nel with said front panel and sloping downwardly
d rear panel to said front panel,
ng from said rear panel t
said tray.

nd lower flaps to form lower bottom flaps of sa

panel having a billboard panel extending down
g said shelf cha

ting information
nel to remain visible through

for displaying promotional
roduct conta n

AND MIXING TWO
SUBSTANCES

**Bodo Hildebrandt, Riedstadt, and Franz Steigerw
sheim, both of Fed. Rep. of Germany, assignors
Aktiengesellschaft, Darmstadt, Fed. Rep. of Germ**

Filed Sep. 29, 1987, Ser. No. 10

Claims priority, application Fed. Rep. of

broken off at a predetermined breaking point, the container comprising a hollow body having a longitudinal axis, a base, and a rotatable cap, a part restricting movement of the ampoule extension provided in the region of the base, and an eccentric disposed on the cap and operatively connected to the

a way that the base of the ampo
the longitudinal axis of the bod
, the cap, and the ampoule being n
he region of the predetermined breaking

4,756,411

MARKETING SYSTEM FOR APPARATUS FOR
CHANGING ENGINE OIL

Everett D. Garland, 2447 Scott Ct., Longmont, Colo. 80501

Continuation-in-part of Ser. No. 714,434, Mar. 21, 1985, abandoned, and Ser. No. 843,138, Mar. 24, 1986, abandoned. This application Oct. 2, 1987, Ser. No. 104,444

Int. Cl.⁴ B65B 39/00; B65D 81/36

a plurality of containers of new oil,
a container means for providing a dis
containers of new oil and a new oil f
and storing used engine oil,
a lower flat support surface on said container means for enabling said container means to be supported in a horizontal attitude as a display stand and during use to receive used engine oil;
an oil receiving means in an upper surface opposite to said support surface of said container means including a rim portion and downwardly inwardly inclined side wall portions and having a drain opening located at the lowest portion of said upper surface for enabling used engine oil to be discharged from beneath an engine onto said upper surface within said rim portion and to flow downwardly and inwardly into said container means through said drain opening,
a removable plug means for closing said drain opening after said used engine oil has been emptied into s

of said container
drained from an engi
each of said support means compris
said upper surface and having a con
portion of one of said containers th
a new oil filter support means on said
a new oil filter supported therein d
tainer means as a display stand pr
tainer means for receiving said used eng
engine, and
a transparent wrap means extending aroun
means and over said contai
filter for holding said conta
oil filter on said container
d stand in a stor
l filter and said

drained fro
12. A disposa
oil while draining used
and display of container
of used engine oil comp
a plurality of contain
a container means fo
said container mea
material
a lower flat
enabling sa
zontal surface ben
engine oil therefron
an upper surface oppo
an oil receiving means in said upper s
means including a rim portion and
side wall portions integral with said
upper surface and having at least
cated at the lowest point of said upp
used engine oil discharged from

opening
a plurality of
surface and
form an in

a pai
two opposite walls of said plurality
a recess formed in each of said ledges
surface for supporting a plurality of
oil
a first removable metal
opening after said u
l container mea
opening in said
nd removable
after said use
tainer means
14. A disposal

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y of walls integral with said lower flat support
urface and said rim portion and cooperating therewith to
form an inner cavity in said container means for holdin
used engine oil,

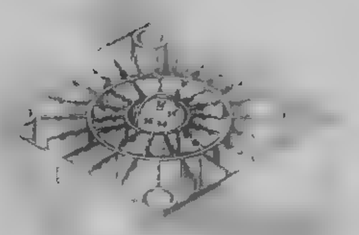
port pillar means having a significant surface
cting said upper surface and limiting move-
aid upper surface toward said lower flat support
n response to forces applied to said upper surface,
rt pillar means being integral with said lower flat
surface and having a continuous surface,
means on said upper surface for supporting said
y of containers of new oil during use of said con
ans as a display stand prior to use of said con-
receiving used engine oil drained from an

r for closing said at least one drain
engine oil has been emptied int

ent opening in
e and removal
after said used

wer at least a

ING TACKLE BOX
n Pond Rd., Harriman, Tenn. 37748, and
Atlantic Ave., Apt. 704, Cocoa Beach, Fla.



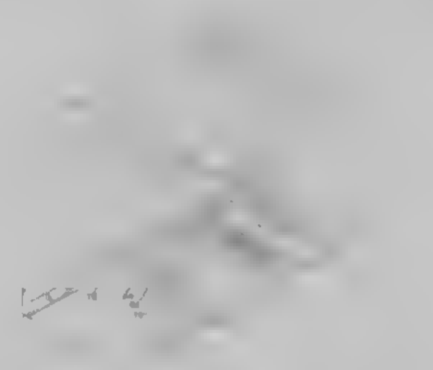
es and a latcha
east one carousel rotatably mounted in said housing, said
rotatable carousel having a plurality of radially extending
support arms for hanging a plurality of fishing lures
l support arm having
g lure thereon, an
l in said housin

a square housing having a plurality of sides and a
a first carousel rotatably mounted in said housing,
able first carousel having a plurality of radially e
l arms mounted around a center support
ging a plurality of fishing lures thereon, a
second carousel slidably mounted in the center
carousel and having a plurality of radial
port arms mounted around a center
whereby a fishing tackle box can store lures and
a hanging position for rotation to a desired posit

4,756,413

SHIPPING FRAME

ules C. Gits, 155 Brandon, Glen Ellyn, Ill. 60137
Continuation-in-part of Ser. No. 763,943, Aug. 8, 1985
This application Oct. 6, 1986, Ser. No. 915,398



peripheral members joined at their ends and arra
define the intersections of the sides of the frame
t least one of the skeleton halves including at le
brace mounting member extending betw
pheral members thereof, said at least one cr
mounting member being supported by said at
skeleton half to be spaced inwardly of said fr
adapted to carry said article secured thereto an
inwardly of said frame, the skeleton halves ea
integrally molded of structural foam material and
thereof being free of interconnecting material

ANTISTATIC SHEET MATERIAL AND PACK

Charles L. Mott, Midland, Mich., assignor to The Dow
ompany, Midland, Mich.
Filed Oct. 9, 1985, Ser. No. 785,86
Int. Cl.⁴ B65D 73/0

U.S. Cl. 206—328 26 Claims

1. A flexible sheet material adaptable for forming a package, bag, pouch, or the like for containing electrostatically sensi
mprising:
f a flexible heat sealabl
nd secondary major

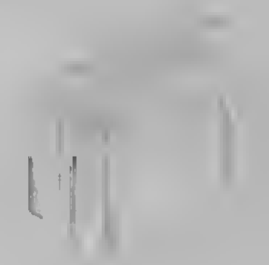
flexible plastic materi
major surfaces with a
on said primary majo

with antistatic properties on at least said secondary maj
surface, said first and second layers of material bein
bonded together along said primary major surfaces, r
first and second layers

4,756,415

SHRINK WRAP BATTERY PACKAGE

Richard E. Call, Wescosville, Pa., assignor to General Battery
Corporation, Reading, Pa.
Filed Jul. 9, 1986, Ser. No. 883,540

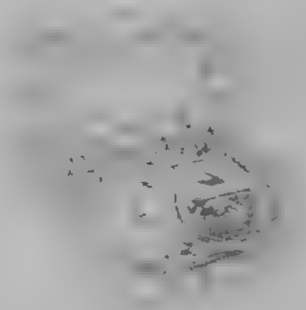


storage battery shrink wrap enclosure, co
a) a pair of battery terminal and vent cover protecti
each of said pads including,
(1) a first portion defining an opening capable of inter
receiving one of said storage battery terminals a
said terminal, said opening ex-
gh the top surface of said pad, said pad
height greater than said terminal height so said
xtends to a point below said pad top surface,
ortion defining an opening capable of r
of said vent cov
aid storage batte
d second portions having substantially the
height, and
shrink material enclosing said battery and said pa
tery terminal and vent cover protection pads a
pads so they define a fl
parallel to said batter

DOWN CARRIER FOR ATHLETIC E
OR THE LIKE

Johnson, 705 Catalina Ave., Seal Beach,
Filed Mar. 30, 1987, Ser. No. 31,775
Int. Cl.⁴ B65D 85/04

ing unit, leaving a clearance space
means for releasably closing housing
said housing unit including a front wa
walls, and a
substantially



member spaced

Norman J. Texeira, Sant

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ides, the lower

g passages extending lengthwis

accommodate the forks of a fork lift

attached to and congruent with the upper part of

llet, said bottom having opposite side edges and

e end edges,

walls attached to opposite side edges of said bottom and extending upwardly therefrom to respective upper edges, said two side walls parallel to each other a paced apart with the distance between them slight

of the lower part of said pallet but

f the upper part of said pallet,

irt of the pallet of an identical

the upper edges of said two side

opposite end edges of said bottom

from to respect

rallel to each

stance between them slightly

ower part of said pallet,

nding higher than said end walls by

l to the height of the lower part of said

the upward extensions of said two side

height of the upper edges of said end

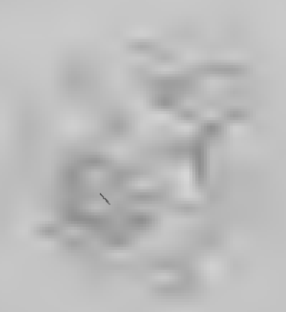
r part of the pallet

leward movement

G APPARATUS AND METHOD

awrence P. Kenney, both of Roches-

tman Kodak Company, Rochester,



ore; and

said car-

manually

r locking

4,756,419

A FOR A TWO TIER CONTAINERS

Philippe Le Bras, Chateauroux, France, assignor to T Corporation, Dayton, Ohio

Filed Jun. 4, 1987, Ser. No. 58,218

Claims priority, application United Kingdom, Jun 8614975

Int. Cl.⁴ B65D 75/38

1. A package for accommodating a group of cup-shaped containers arranged in two tiers, each tier comprising a plurality of containers disposed in at least two adjacent rows, the package including an outer wrapper which secures all the containers of the group together in a unit and comprises a top

ing side walls and a bottom wall, and a

disposed between the bases of the con

upper tier and the tops of the containers in the lower tier said partition being formed from a sheet of foldable material having spaced longitudinal side edges and transverse end edges and comprising divider panels (54,60) extending inwardly fr the longitudinal side edges of said partition and ov least a portion of the cups in the lower tier, upwardl keel panels (56,58) hinged to the divider panels at remote from said side edges, said keel panels being j each other to form a longitudinal keel (K1), and arc tures (A1–A6) formed in said keel panels in spaced re so as to provide longitudinal and transverse separati containers in the upper tier, characterized in that a

led from material struck from said ke

apertures, each platform extending in-

ivider panel and overlying the tops of a respective one of the containers in the lower tier to support the base of respective ones of the containers in the upper tier

4,756,420

ESTING CONTAINERS WITH ANTI JAMMING

Thomas P. Deaton, Mason, Ohio, assignor to Buck

Milford, Ohio

Filed Mar. 19, 1987, Ser. No. 27,896

Int. Cl.⁴ B65D 21/02

S. Cl. 206—514

6 Claims

prising

pectively identical unitary molded

tote boxes each box having a rectangular

wall of generally the same single sheet thickness

three dimensional configuration formed by first

upper bottom portions, second horizontal

portions, and vertically exten

is interconnecting said horizont

s to form reinforcing channels across the bottom

aid tote boxes further having four generally rectan-

ar side walls connected at bottom edges integrally with said bottom wall and at adjacent side edges with ea other to leave upper edges, said side walls

vertically upwardly and sloping outwardly

stops positively engaging to spa

ing identical boxes from each ot

t of boxes having side walls that are

ually less height than the side walls of said first set and bottom walls of substantially identical rectangular shape as said first set so that the two sets of boxes are of substantially different volumes with the first set being tall bo and the second set being short boxes;

each of said second set of short boxes being nestable with each of said first set of tall boxes with interengaging of said nesting stops to space adjacent bottom walls from

pening downwardly so that said short

er surfaces extend outwardly from said channels

nparison to said tall box corner surfaces so that said

orner surfaces of the horizontal lower bottom portions of

he upper tall box set on said short box corne

during nesting of the tall box within the short

interengagement of said channels for prevent

4,756,421

FOOD PACKAGE

702 S. Deerfield Rd., Rolling M

Jun. 22, 1987, Ser. No. 64,526

Int. Cl.⁴ B65D 1/28

age for holding and displaying

isting of poly

Thomas J. Kristen, 58 Indian Rock Rd., San An

94960

Continuation-in-part of Ser. No. 9,110, Jan. 1, 1987

which is a continuation of

abandoned. This applica

Int. C

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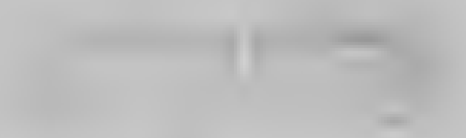
R FOR TAKING MEDICATION

l, Taunusstein-Wingsbach, Fed. Rep. of Germany, assignor to Holtsch Metallwarenherstellung, Taunusstein-Wingsbach, Fed. Rep. of Germany
Filed Aug. 7, 1986, Ser. No. 896 742
Claims priority, application Fed. Rep. of German
15 35 28 29



ig medication comprising
a background color and at least one colored
lor different than said background color to

colored portion appears in said windows alternatively
which only said colored portion is visible through
indows so as to form a plurality of indicator

g means for releasably fixing said first plate
and second plate together in each of said indicator
ons, said releasably fixing means including an engag-
ember fixed to one of said plates, the other of said
ty of receiving areas corresponding
r positions, said engaging member
engage with a respective one of said
by spring biasing into said respective one
g areas to thereby releasably fix said plates

g medication, comprising
round color and at least one colored
of a color different than said background color to
de contrast
plate independently movable on said first plate and
g a plurality of alphanumerically formed windows
formed to have an alphanumeric shape and so that
ored portion appears in said windows alternatively
nly said colored portion is visible through
dows so as to form a plurality of indicator

releasably fixing means fo releasably fixing said
and said second plate together in each of said
positions, said second plate having an inner portion and an
r portion, said inner portion being arranged radially
le of said outer portion, each of said portions having a
plurality of said windows, said colored portion bein
arranged to be simultaneously visible through at least
of said windows of each of said portions, and
for releasably fixing said inner portion to said outer
on so that said inner portion and said outer portion
alternatively movable independently of each other and
movable in association with each other

16. An indicator for taking medication, comprising
a first plate with a background color and at least one colored portion of a color different than said background color to provide contrast,
a second plate independently movable on said first plate and having a plurality of alphanumerically forme
ach formed to have an alphanumeric shape a

positions,
releasably fixing means for releasably fixing said first plate and said second plate together in each of said indi
positions,
a third plate,
means for attaching said second and third plates togeth such that a space forms therebetween for placement of medication; and
ns for dispensing said medication from said space be
said second and third plates and including a plural-
f openings formed in one of said second and third plates so as be peripherally open, and a further opening formed in and movable with said first plate and also being peripherally open, said further opening being arranged to align with one of said plurality of openings when said first and second plates are at a corresponding one of said indi

MULTIPURPOSE CONTAINER ASSEMBLY FOR PREPARATION OF BEVERAGES

Charles M. Schwartz, Canoga Park, Calif., assignor to Chaspo Industries, Inc., Los Angeles, Calif.
Filed Jul. 7, 1986, Ser. No. 882,467
Int. Cl.⁴ B65D 85/62, A45C 11/20
U.S. Cl. 206—

accessory comprising in combination
a pair of cups, each cup having a side wall provid
external side surface configuration, an end
and an open end
receptacle means adap
one of said cups,
a connector means having a central portion havin
nal surface configuration corresponding to th
urface configuration of the side wall
ral portion having an internal sur
ding a radially inwardly directed
ing a stop surface for co-action with said recept
to retain said receptacle means in one of said c
said connector means including oppositely d
portions receivable within said open e
assembly therewith,
said end portions of said connector means
central portion external shoulder surfaces for a
edges of said cups,
said end portions including spaced radially outv
protuberances adjacent said external shoulders for
nal releasable retention of said cups in assembl

dimensions of said radially inwardly directed projections for restricting longitudinal movement of said receptacle

SINGLE WALL, NESTABLE/STACKABLE, ROTATABLE TANK

Thomas W. Wise, Oreland, Pa., assignor to Plastech International, Inc., Warminster, Pa.
Continuation of Ser. No. 730,440, May 6, 1985. This application Mar. 17, 1987, Ser. No. 26,88

tor handling and storing large
as cucumbers, pickles, and oth

walls
the walls including nesting stop means for facilita
and unnesting of the tank in a similar tank by
distance an upper nesting tank extends into a lower n
tank,
the walls further including lip support means extending
the walls for supporting the lip at the top of the four walls and for guiding a tank being lowered next to an adjacent tank into proper position,
the bottom including three parallel spaced, d
extending, hollow runners integrally molded
tom and forming supporting members for the
the runners extending across the bottom wall of the tank
recesses formed at the ends of the runners adapted for entry of tines of a forklift truck or a pallet jack, and spaces
veen the runners for entry of th
let jack

4,756,426

GABLE-TOP CONTAINER

Gregory R. Wyberg, Minneapolis, Minn., assignor
Mining and Manufacturing Company, St. Paul
Filed Apr. 10, 1987, Ser. No. 36,9

and second side panels,
b) bottom closure panel means

cond opposed

body panels,
(c) first and sec
connected to said first roof p
said first triangular end pane
panel connected to said second
first triangular en
dback panels, said
connected t
said second
panel connec
triangular end panel and adj
second roof panel,

said first roof rib par
(f) second roof wing pa

and second ga
nd second roof

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THOD AND APPARATUS FOR SORTING PARTICLI

degard Göhde, Nottuln, and Johannes Schumann, Müns
both of Fed. Rep. of Germany, assignors to Partec AG, Bon

ntinuation of Ser. No. 774,835, Sep. 11, 1985, abandoned. This application Oct. 14, 1987, Ser. No. 110,032
laims priority, application Switzerland, Sep. 11, 1984

iquid into the duct u
ended therein, the part
igh a first one of the bran
f liquid with a particle-free envel
to produce substantially laminar

ssed, and
ring the volume of a portion of one of said
create a pressure disturbance downstream
ignal indicating sensing of
n a specific particle at the
introduction of gas so that
t is momentarily disturbed
the fork while both branch
low, thereby interrupting
h duct and causing
cond branch duct

AND TURBO-SEPARATOR FOR DISPERSI PARATION, PARTICULARLY OF CEMENT

er Jäeger, Bochum, Fed. Rep. of Germany, assignor to
Klockner-Humboldt-Deutz Aktiengesellschaft, Fed. Rep. of
Germany
Filed Jun. 12, 1986, Ser. No. 873,494
laims priority, application Fed. Rep. of German

Int. Cl.⁴ B07B 4/02, 11/06
14 Cla

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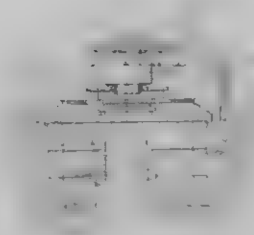
y due to gravity



4,756,429

ROUSEL DATA HOLDER

Marcus S. Lehman, Lake City; Carl J. Schoberg, Zumbro Fall
and Daniel C. Johnson, Rochester, all of Minn., assignors t
Liberty Diversified Industries, New Hope, Minn.
Filed Mar. 31, 1986, Ser. No. 846,229
nt. Cl.⁴ A47B 65/00, 47/00; A47F 5/02
1—43
23 Claims

1. A data carouse r accessible storage of ing materials such like, comprising:

central hub upstanding from said base
tubular newel mounted in said hollow
and extending upwardly therefrom; and
a data carousel comprising a plurality of elongated holder arms projecting radially from said newel and mounted thereon in vertically adjustable offset stacked array to separately and independently rotate thereabout, and including two upwardly extending brackets mounted o
holder arm, laterally spaced in opposing rel
the data-holding holding materials ther

4,756,430

GRAVITY FEED SHEL

illiam S. Spamer, Roswell, and David S. Leverette, Hartwell
both of Ga., assignors to The Mead Corporation, Dayton,
Filed Dec. 1, 1987, Ser. No. 127,051
Int. Cl.⁴ A47

supports and a pair of side supports interconnected at their ends with the ends of said cross supports to form a rectangular frame and interconnected at their back ends respectively with said upright posts, a transverse inwardly projecting support panel formed on at least one of said side supports adjacent the back end thereof and having front and back tabs extending respectively from its front and back edges, said back cross support being of stepped configuration and including a first transverses strip disposed in a vertical plane, a second transverse strip integral with the lower edge of said first transverse strip and disposed in a horizontal plane, and a transverse flange integral with the front edge of said second transverse
extending between said side supports, a downward
ing panel formed on the lower edge of said first t
strip, a transverse slot formed in said downwardly projecting panel for receiving said back tab and being of a length greater than the transverse dimension of said back tab, and a transverse
flange for receiving said front tab and being
than the transverse dimension of said front

4,756,431

RADIO CONTROL AERIAL AUTOMATIC CARRYING SYSTEM

Kozo Hirano, Minono-machi 93-1, Hitoyoshi-shi, Kumamoto
ken, Japan
Filed Jan. 13, 1987, S

aerial main ca
mined region,
inning wheels engaged with sa
hollow outer casing suspended
a power source mounted on said
hoisting means mounted on said
said power source, said hoisting
bles to lift and lower an object to be carried
er, provided on said outer casing, for rece
es which are transmitted from a transmit
generating control commands t
and said hoisting means in resp
received.
rotary shaft wh
rotated by sai

pparatus, and
two coaxially al

CRANE CONTROL METHOD

Harushito
and Toshitsugu Hasegawa, all of Ja
to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 9, 1987, Ser. No. 71,
Claims priority, application Japan
Int. Cl.⁴ B6
U.S. Cl. 212—13.

pended parcels
pended parcel

wing said paus

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riod follow-
and deceler-
uring which
e same time

ONTAINE

upei Hsien, Taiwan

nding sidewall, at least one
d in and extending along the
cup; the slot having a
all at the top of the

4,756,434

F-R PROOF CAP

Wimberly La., Wi

1987, Ser. No

Int. Cl. B65D 55

assembly for s

f undesirable elements to said
nbly comprises.
y secured into said container
er portion a spaced distance

ments into said contains
discharge port

4,756,435

CHILD-PROOF SCREW CLOSURE WITH THREAD STRIPPING PREVENTION

Jurgen Schick, Hemsbach; Bernd Kaschewski, Erpolzheim, and Kurt Ehrenfried, Ludwigshafen, all of Fed. Rep. of Germany, assignors to Joh. A. Benckiser GmbH, Ludwigshafen, Fed Rep. of Germany

Filed Aug. 20, 1987, Ser. No. 87,600

Claims priority, application Fed. Rep. of German
986, 3629289

Int. Cl. B65D 55/02

pen end of the container, the plate
omprising threads and defining an

cessed

a cap for closing the aperture, said cap having a threaded

of the plate, sh
st the crosspie

ingly contacts the crosspiece to prevent unscrewing of the cap from the plate, and whereby the shoulder of the cap abuts the crosspiece when the cap is fully threaded on the projection to prevent further turning of the cap which would strip its threads.

4,756,436

OXYGEN SCAVENGER CONTAINER USED FOR CAP

Yoshikazu Morita; Toshio Komatsu, and Yoshiaki Inoue, all of Tokyo, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Nov. 19, 1987, Ser. No. 122,685

Claims priority, application Japan, Nov. 28,

An oxygen scavenger contain
iquid substance-containing vesse
omposed of an upper vacant com
portion having at least one opening providing communication between the upper vacant compartment and the exterior of the scavenger container, a lower container compartment which contains the oxygen scavenger, and partition means provided to separate said upper compartment from said at least one opening and said lower container compartment, said partition means comprising single or plural sheets of gas permeab
liquid-proof material to provide a double barrier between t
oxygen scavenger and a liquid substance

Massimo Rossi-Mossuti, Lutry, Switzerland, assignor to W. R. Grace & Co., Lexington, Mass.

Filed Feb. 26, 1987, Ser. No. 19,104

Claims priority, application United Kingdom, Feb. 27, 1986,
04885

inner and outer faces and side walls depending d
from the inner face of the closure panel, the closur
formed of a vapour permeable polymeric material, and a
pour impermeable lamina moulded into at least one face of
closure panel, the vapour impermeable lamina having a vap

alc
a printe
foil, metalized polyester film, p
paper, and an outer protective laye
consisting of polypropylene, pol
polyamides, and wh
tends over at least

eoffrey A. Ryder, Welwyn Garden City, Engl
W. R. Grace & Co., Lexington, Mass.

Filed Jun. 17, 1987, Ser. No. 63,20

Claims priority, application United Kingd
14734

projecting tamper-evident ring retaining b
internally threaded and engaging the exter
tainer neck, the plasti
releasably secured t
the tamper-evident

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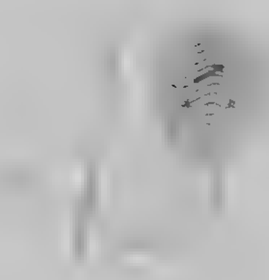

FOR BEVERAGE CONTAINERS
49 N. 79th St., Scottsdale, Ariz. 8525
d Sep. 14, 1987, Ser. No. 95,66
Int. Cl.⁴ A47G 19/22
4 10 Claims

ripheral means for sealingly engaging the lip of said tainer,

raised central portion formed in said cover portion,

d) radially extending reinforcing ribs formed in said cover portion and connecting with said central portion through lines of flex; and

a drinking spout formed

twardly therefrom, said

lurality of apertures in co

on cooperating with said reinforcing herebetween to allow inward flexing

4,756,441
FILE SYSTEM SUPPORT ASSEMBLY

L. Sharp, Westborough, Mass., assignor to Wright Line
Worcester, Mass.
Filed May 30, 1986, Ser. No. 869,140
B65D 25/06; B42F 17/00
15 Claims

eable assembly for supporting a file a desk top or the like, the h has a plurality of separator n and located ce

most surface which is engageable with a support such as the bottom of a file drawer, each rail also having a flat upper pivot surface above the lowermost surface, and lying in a common plane,

means joining the pivot rails together, which mean located below the pivot surfaces of the rails,

a locking rod located midway between the pivot rails and extending parallel thereto to pass through the apertures in the separator cards, and

rod retaining means secured to and extending upwardly from the joining means and releasably engageable with the

locking rod and having means to position the rod between the rails at or below the plane of the pivot surfaces of the rails and above the lowermost surfaces, and

whereby bottom lateral portions of the separator cards can be supported on the pivot surfaces of the rails with the locking rod extending removably through the apertures in the cards and one or more central portions of the cards may extend below the pivot surfaces whereby the entire assembly may be placed in a tray, drawer, or on other supporting surfaces with the lowermost surfaces of the support surface

4,756,442
CONTAINER CAP

Hans Halm, Herne, and Guenter Schwerdt, Buehl, both of Fed. Rep. of Germany, assignors to Lingner & Fischer GmbH, Fed. Rep. of Germany
Filed Jun. 18, 1987, Ser. No. 64,075
Claims priority, application United Kingdom, J
8615169
Int. Cl.⁴ B65D 1/6

dispensing container for the liquid and a removable closure e comprising a flexible band carrying tlet orifice, each end of the band being attached to the cap, and the band hanging support for the conta

PRESSURE-PACKING CONTAINER WITH EASY-TO-OPEN CLOSURE

Yasuyoshi Murayama, Nagaoka, Japan, assignor to Vilamor Research & Development Co., Ltd., Niigata, Japan
Filed Aug. 10, 1987, Ser. No. 83,715

king container comprising

ntainer body having an opening and a recessed inner pheral portion disposed adjacent to said opening; and

losure cap adapted to be attached to said container for closing said opening, said closure cap including

a rigid outer closure member having an upwardly projecting rim defining a downwardly open annular groove for receiving a peripheral edge of said container body defining said opening, and

(ii) a resilient inner closure member joined with the underside of said outer closure member and extending at least along an inner peripheral wall of said rim, said inner closure member having an impervious surface layer sealingly engageable with said peripheral edge of said container body, said inner peripheral wall of said rim being plastically deformable radially outwardly to u said inner closure member to resiliently flex into s recessed inner portion of said container body, thereby providing a hermetic seal between said container body and said closure cap

4,756,44
LID FOR LARGE FOOD PREPARATI

ran Persson, Västra Frölunda, Sweden, Persson Maskin AB, Sweden
Filed Apr. 22, 1987, Ser. No. 41,056
Int. Cl.⁴ B65D 43/26

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against the

xtending through

g through the ax

4,756,44
LINER FOR M
RECEPTACLE

Richard J. Agee, Sr., P.O. Box 239, Hot Springs, S
Filed Dec. 7, 1987, Ser. No. 129,05
Int. Cl.⁴ B65D 25/14

ng an ope

said recepta

and a fourth front side angling out

said open top is greater than the a

said vertical and front sides being

substantially perpendicular angles, said three v

being affixed to said bottom at substantially perp

angles and said fourth front side being affixed to said

a slightly obtuse angle, each of said sides te

open top in an outwardly extending rim se

section being a flat, substantially horizontal

said rim sections forming an upper rim to sa

which encircles the periphery of said open

prising

a top opening an

three substanti

ngling outwardly so that the area of

r than the area of said closed floo

walls being integrally joined to

said floor at rounded corners, the dime

and said vertical and front walls substant

ng to the internal shape and size of sa

lly extending terminal lip segments

vertical and front walls, each of

a flat, substantially horizontal m

ual to the width of said

d lip segments forming

oles located in

d first plural

segmen

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4,756,446

OUBLE-WALLED CONTAINER

Tokyo, and Tsuneo Naganuma, Hyogo, both of Japan, assignors to Glico Dairy Co., Ltd., Tokyo, Japan

Filed Sep. 19, 1986, Ser. No. 909,259

Claims priority, application Japan, Mar. 28, 1986, 61-

walled container having the appearance of one piece of natural fruit which is generally spherical in the container comprising

erally hemispherically-shaped outer wall formed of a thetic resinous material, the top edge of the outer wall ng formed with a radially-inwardly-facing stepped figuration defining an annular seat, the stepped config- ated soley in the top edge and inner ter wall and the outer wall having no rojecting flange,

hemispherically-shaped inner wall, within the l, formed of a synthetic resinous material, the rnal diameter of the inner wall being smaller than the ernal diameter of the outer wall so as to provide a gap ween the two walls

of strengthening ribs projecting inwardly from surface of the outer wall into the gap between

nge extending radially outwardly from the top of the er wall, the periphery of the flange engaging the annu- seat of the outer wall, and the flange resting upon the per surfaces of the ribs, and

eriphery of the flange and the annular seat of the outer ll being fused together, so as to form the two walls into ritary structure

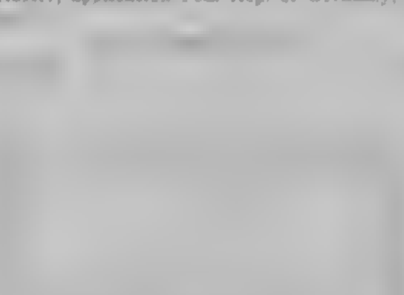
4,756,447

PERATURE-CONTROLLED TANK CONTAINER

lmut Gerhard, Weitefeld, Fed. Rep. of Germany, assignor to Westerwaelder Eisenwerk Gerhard GmbH, Weitefeld, Fed.

Filed Dec. 15, 1987, Ser. No. 133,337

Claims priority, application Fed. Rep. of Germany, Dec. 19,



provided at the vertex thereof and two bottom member

a heat-insulating jacket surrounding the tank casing on a sides with a spacing therebetween which is substantially constant throughout, and having two portholes formed at one end thereof on top of each other for the entry and exit of a temperature-control medium, and

partitions disposed between the tank casing and the insulating jacket and comprising a plurality of partition rings surrounding the tank casing in radial planes and two partition webs extending in parallel on either side of a vertex line of the tank, said partition rings and webs, by way of through-holes formed in said partition rings, defining compartments which communicate with each other such that the temperature-control medium flows in one direction along the entire length of the tank through a vertex channel surrounding the tank fittings and in the other direction along a meandering path which passes over all remaining area of the tank casing

4,756,448

VENDING MACHINE FOR VENDING ONE-AT-A-TIME MERCHANDISE ARTICLES OF A PLURALITY OF SIMILAR SUCH MERCHANDISE OBJECTS, EACH OF A SUBSTANTIALLY RECTANGULAR PARALLELOPIPED SHAPE, SUCH AS A NEWSPAPER, MAGAZINE, OR THE LIKE

Frank L. Dahl, 5248 W. 119th Pl., Inglewood, Calif. 90304

Filed Sep. 11, 1986, Ser. No. 906,134

Int. Cl.⁴ G07F *11/14*

U.S. Cl. 221—4 13 Claims

sing and vending each one of a plurality of substantially larly shaped, flat, merchandise objects each of substantially parallelopiped shape in an object-size-adjustable manner, comprising: a hollow housing defining therein an enclosure having a predetermined length dimension, a predetermined transversely perpendicular width dimension and a predetermined depth dimension perpendicular to both said length dimension and said width dimension, whereby to cause said enclosure to include a merchandise-storage portion of substantially parallelopiped shape and of a selected length, width, and depth such as to be large enough for interior storage of a plurality of pth-direction stacked similar merchandise objects, each of a lar substantially flat configuration, each having a predeter ned length and width substantially less than the corresponding length and width dimension of said hollow enclosure, and each having a depth and thickness dimension which is only a small fraction of the depth dimension of said hollow enclosure, hereby providing for the depth-direction stacked superimposition of a plurality of such similar merchandise objects within l enclosure in depth-direction stacked relationship with the and width dimension of each such merchandise object a transverse plane; a transverse substantially flat sup

with said transverse sur

atform or table and also cooperable with a fix tion point thereof relative to the interior of said housing means for normally forcing said stacked plurality of similar merchandise objects in the biased opposite-to-depth direction substantially perpendicular to the transverse orientation of each of said merchandise objects; controllably adjustable stop means positioned in a manner spaced from said supporting platform r table and with an adjustable spaced relationship therebetween in an opposite-to-said depth direction manner such as to allow a desired number of stacked merchandise objects to be positioned between said supporting platform or table and said spaced stop means; separator means positioned within said hollow enclosure and transversely adjacent to a merchandise-dispensing region defined between said supporting platform or table and said spaced stop means whereby to be immediately transversely adjacent to such a stacked assembly of said merchandise objects and displaced in said depth direction by a distance corresponding to the depth and thickness dimension of one of such merchandise objects and controllably manually extensible from a normal at-rest position into a manually caused activation position with said separator being forced between an end one only of such a plurality of stacked merchandise objects whereby to cause an end one of said merchandise objects to be effectively segregated from the remainder of the stacked merchandise objects so the end one of said merchandise objects is in a condition to be manually removed from he hollow enclosure; a manually openable access door carried by said housing means and provided with coin-openable locking means normally locking said access door in closed relationship with respect to said housing means; and exteriorly accessible coin-receiving means carried by said housing means and coupled to said coin-openable locking means cooperable to unlock said access door whereby to allow it to be manually opened, causing the separator means to segregate the end one of such a plurality of stacked merchandise objects from the remainder thereof and readily accessible to the hand of a person inserted through the temporarily opened access door into he merchandise-dispensing region to allow manual removal in transverse horizontal direction of the end one only of said of stacked merchandise objects,

ljustable stop means including first and second effec- carriage portions movably coupled relative to each ther and effectively comprising composite carriage means, with said first portion being coupled to and effectively movable with said separator means and with said second carriage portion being coupled to the rest of said controllably adjustable stop means for relative movement upward and rearward, and for opposite reverse return movement, to provide increased rearward offset positioning of said controllably adjustable stop means for relative movement upward and rearward, and for opposite reverse return movement, to provide increased rearward offset positioning of said controllably adjustable stop means whenever it has its underlying vertical spacing for thicker stacked merchandise

separator means

4,756,449

APPARATUS FOR TAKING OUT BUNDLED

Yoshifumi Miura, Urawa, Japan, assignor to Laurel Bank Machines Co., Ltd., Tokyo, Japan

Filed Jun. 24, 1987, Ser. No. 66,660

Claims priority, application Japan, Jul. 8, 1986, 61-104519

Int. Cl.⁴ A47F *1/12*

S. Cl. 221—129 1 Cla

ally stacked condition; an elevator movable up and down in ront of said containing boxes; a slide-guide shaft vertically nged between said elevator and said containing boxes, each a swing shaft is slidably mou

said containing boxes during its upward motion together w said sliding block; said discharging block having a bills pushi surface to be contacted with the bottom surface of the bundl bills and an inclined surface on which a discharging bl reversing roller slides to direct said pushing surface upw when said discharging block moves downward together said sliding block; a regulating arm swing said swing shaft and usually urged tow causing said inclined surface to abut ag

tion of said discharging block with this dischar regulating roller abutted against a portion of sa when said elevat block being prov block for preve

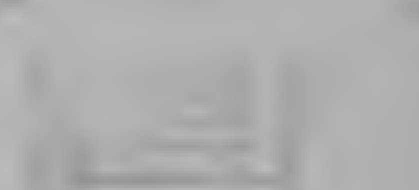
Guy Negaty-Hindi, Onex; Yve Koblet, Meyrin, all of Switzerland, a morial Institute, Columbus, Ohio

PCT No. PCT/CH85/00076, § 371 Date Mar. 4, 1986, § 102(e) Date Mar. 4, 1986, PCT Pub. No. WO86 0 Date Jan. 30, 1986

PCT Filed May 8, 1985, Ser. No. 85

Claims priority, application Switz

Int. Cl.⁴ B



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luding a movable mable portion of said flexible bag.

one resilient element operatively coupled to said able disc for exerting a compressive force on said bag ducing the volume of said flexible bag, and

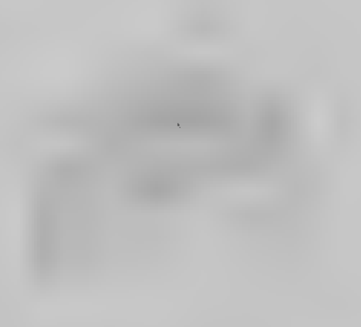
ng element connecting said movable disc to a fastening element secured to the housing, said locking element being adapted to follow said disc when said disc is moved as a result of a decrease in the volume of the liquid, and to ecured to said fastening element when the opposing built up in the bag as a result of the outgassing of the k is greater than the force of said at least one resilient element; wherein said fastening element is a rod and said locking element has an opening dimensioned so as to move freely along said rod when the axis of the opening substantially coincides with the axis of said rod, said locking element having a cross-section in the form of a L with one end resting on said movable disc at a distance from the opening so as to move an axis of said locking element through an angle relative to the rod axis when the mov- to move as a result of an increase in

4,756,451

D RESISTANT CLOSURE WITH ENERGY PLANES

oodrow S. Wilson, Johnston, R.I., assignor to Polytop Corporation, Slatersville, R.I.

9 Claims



1. A child resistant closure comprising a cap and a spout, id cap being adapted for attachment to a container, said cap ving a top, an opening formed in said cap communicating ith the interior of said dispensing closure, a through passage rmed in said spout, said spout having an upper surface, said out being supported within said cap, said spout being apted for rotation about a horizontal axis between a closed sition wherein said spout closes off said opening in said cap id an open position wherein said opening in said cap and said rough passage are aligned, a pattern of transverse ribs rmed on said top of said cap, and a plurality of ribs formed on id upper surface of said spout, each of said ribs being provided with an energy plane, each of said energy planes terminating in a planar upper surface, all except one of said energy anes preventing sufficient purchase to rotate said spout when

4,756,452

MOLTEN METAL POURING NOZZLE

Noboru Tsukamoto; Masaru Terao, both of Akaiwa, and Hiroyasu Uiji, Bizen, all of Japan, assignors to Shinagawa Refractories Co., Ltd., Tokyo, Japan

Filed Oct. 23, 1987, Ser. No. 112,808

Claims priority, application Japan, Nov. 13, 1986 174620[U]; Jun. 16, 1987, 62-92355[U]

Int. Cl.⁴ B22D 37/00

1. A nozzle to pour molten metal which comprises a cylindrical casing with its axis positioned vertically, a first porous brick placed at the upper position in the casing, a dense brick placed at the middle or lower middle position in the casing, a second porous brick placed at the lower position in the casing, said three bricks in combination with one another forming a vertical hole through which molten metal is poured, said first porous brick having a first gas passage formed around it, said second porous brick having a second gas passage formed around it, a first gas supply pipe connected to the casing, said first gas supply pipe communicating with said first gas passage so that an inert gas introduced through the first gas supply pipe enters the first gas passage and passes through substantially the first porous brick alone and finally blows out from the inner surface of the first porous brick, and a second gas supply pipe connected to the casing, said second gas supply pipe communicating with said second gas passage so that an inert gas introduced through the second gas supply pipe enters the second gas passage and passes through substantially the second porous e and finally blows out from the inner surface of th ous brick

4,756,453

STOCKING ASSIST DEVICE

ohn J. Pettit, Box 54, Penn Estates, East Stroudsburg, Pa. 18301, and Frank Pettit, 696 Fairway Dr., Union, N.J. 07083

Filed Jul. 13, 1987, Ser. No. 72,435

Int. Cl.⁴ A47G 25/90

14 Claims

said hinge including a spacer to prevent said distal ends from touching and interfering with the spreading of the hosiery, and

) a pair of adjustable hosiery inversion arms mounted one on each said support post at one arm end between said proximal and said distal post ends in parallel and facing juxtaposition, said arms being presized to receive hosiery thereon,

whereby when a piece of hosiery is placed over said arm with its open top inverted over both said arms simultaneously to form thereby a cup with said hosiery toe extending downward between said arms, a user may, by holding said posts at their proximal ends, one in each hand, and by spreading said posts apart, stretch said hosiery open to provide access for insertion of a fo hosiery

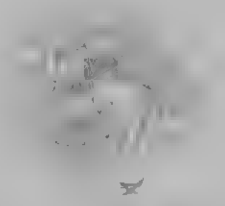
STEREOPHONIC AUDIO EQUIPMENT CARRIER

Xavier R. Villanueva, and Sergio E. Villanueva, both of San Ysidro, Calif., assignors to Novi, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 672,936, Nov. 19, 1984, abandoned. This application Sep. 30, 1985, Ser. No. 781,89

The portion of the term of this patent subsequent to May 5, 2004

Int. Cl.⁴ B62J 7/00



self contained and powered, port. uipment to vehicles having handlebars a l arm, said carrier comprising ody including a pair of spaced-apart spe and a platform,

r removably mounting said main body t f said handlebars in a position centered laterally wi spect to said fork control arm and with the center ravity closely adjacent to said handlebars;

sure,

r means connected between at ers and the audio equipment, nding forwardly of said handle and adapted to receive the audio of a variety of sizes thereon,

means for releasably securing the audi platform, and

means for communicating electric signals from quipment to said transducers, said electric sig enting audio sounds and being generated by

the audio equipment

UTILITY SADDLEBAG FOR WATERCRA

William Kitner, 4425 Palos Verdes Dr., North Ro Estates, Calif. 90274, and Thomas J El Monte, Calif. 91731

Filed Mar. 5, 1987, S

Int. Cl.⁴ B6

an engine compart and an open botton

encompass the air intake port for the craft,

rcraft, and

ring means to hold the saddlebag ides and ends tucked beneath the lov gine compartment encl with, the saddlebag all

ert R. Scruser 9447 Ann

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ing first and second apertures positioned ne and passing through said casing, said aper- ed apart and sized in diameter so as to receive passing therethrough sling swivel stud post heads attached to the firearm, first and second grommet assemblies fastened to said casing at said first and second apertures respectively, each of said grommet assemblies including an inner elastomeric disk and an outer elastomeric disk positioned respectively on the inner and outer surfaces of said casing, each of said disks of each grommet assembly including a substantially circular central bore sized to snugly receive a sling swivel stud post head passing therethrough, said apertures of said casing being larger in diameter than said bores in said disks and smaller in diameter than the outside diameters of said disks, and inner and outer f each grommet assembly being bonded directly to one er their facing surfaces with said bores and said aper aid casing being concentrically aligned, and with a f said casing adjacent said apertures being sand etween said inner and outer disks of each grommet whereby said sling swivel stud post heads pass s casing in a watertight sealing to be attached to said firearm

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4,756,457

GE APPARATUS

KT VEHICLES

camore Ave., Rialto, Ca

18, 1987, Ser. No. 27,25

Cl.⁴ B60R 9/0

r or gate and bumper, comprising

ng a pair of receptacles, each of said recepta- g hinge means adapted to be mounted to the whereby said receptacles pivot unde ther in a horizontal plane,

ach of said receptacles defining a compartment having an open side to receive equipment therein for storage each open side of each receptacle defining a peripheral edge mplementally configured to each other so as to engage other in sealed relation,

gnment means adapted to be mounted between said acles and the bumper of said vehicle, whereby sai ivoted toward each other are aligned

king engage- sed position

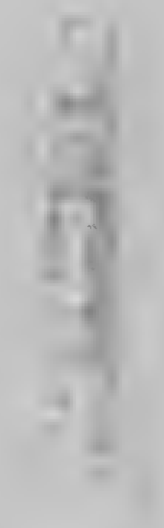
4,756,458

RECEPTACLE FOR WORK SUSPENDERS

Norman L. Clifton, 1155 N. 530 W., P.O. Box 979, Pleasant Grove, Utah 84062

Filed Jan. 15, 1987, Ser. No. 3,589

Int. Cl.⁴ A45F 5/00



l means comprising a pliant front, a pliant back and an ening between the front and back through which a pencil, tool or the like is selectively inserted and removed

means which initially slidably join the receptacle to a suspender strap for manual relative axial displacement therebetween to selectively locate the receptacle ment site accessible to a user,

fastener means by which the receptacle is held suspender strap at said selection location th venting relative forcible axial displacement receptacle and the suspender straps

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4,756,459

ACHMENT FOR VEHICLE ARM

L. Hardman, 2620 S. 123rd, Seattle, Wash

Filed Aug. 21, 1987, Ser. No. 87,73

Int. Cl.⁴ B60R 7/00

U.S. Cl. 224—275

table fore-and-a en and closed

viding for the downward insertion and upward removal of articles into and out of the drawer, latch means cooperative between the drawer and box for latching the drawer in closed position and means attached to the box and depending therefrom and adapted to at least in part encircle the arm rest so as to fixedly mount the box on the arm rest.

4,756,460

HOLDER FOR PAPER ROLLS

Lennart Ornros, Silverdalen, Sweden, assignor to Mo Och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Filed Mar. 17, 1987, Ser. No. 26,709

Claims priority, application Sweden, Mar. 17, 1986, 8601235-8

Int. Cl.⁴ B65D 85/672

7 Claims

A dispensing holder for a roll of paper, comprising

) means for rotatably supporting the roll such that an a (2) thereof is substantially vertically oriented.

a guide edge (4) disposed proximate the roll, ver substantially a full vertical height of the oriented at an angle of between about 40° and 50° to the roll axis, and

a tear edge (5) disposed adjacent an end of the roll. wherein

a web of paper is.

1) withdrawn from an outer peripheral surface of the roll direction (A) substantially perpend

passed over and against the guide edg web exiting the guide edge extends in a direction (B) substantially parallel to the roll axis, and

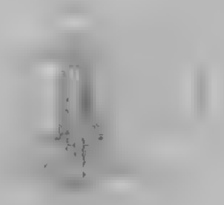
3) fed past the tear edge for severance at a desired length

CAPSTAN BEARING DEVICE

Shozaburo Tanaka, Tokyo, and Kunio Kido, Wako, both of Japan assignors to Tanashin Denki Co., Ltd., Tokyo, Japan

Filed Oct. 31, 1986, Ser. No. 925,548

Int. Cl.⁴ B65H 20/02, 23/04



ylindrical bearing main body extending through to a base plate and supporting at both ends of th main body a capstan, said capstan having a

ing said capstan, said en end of said cylindrical b having an opening through a pa thereof so as to receive an associ said opening, and said enclosure capstan hole of a tape cas means provided adjacent to the prevention of slip-of

---

CASSETTE TYPE STAPLE

Yoshiyuki Ebihara, Tokyo, Japan, a

Filed Aug. 14, 1986, Ser. No. 896,202

Claims priority, application Japan, Oct. 17, 1985, 60

The portion of the term of this patent subsequent to

sette receiving meml ber, a handle memb ceiving member, said cassette receiving member bei form of a hollow member having a forward opened end rearward closed end, a cassette containing a set of staple en and being inserted into the hollow portion of sa receiving member through said forward opened e t the forward staple driving apertures of the cassette aligned with a given driving ment on the handle member a and means for locking the cassette within the cas

including a recess adapted to re

position

said han

AUTOMATIC WELDING MACHINE WITH TO CARRIAGE BACKLASH PREVENTING MECHAN

Hisao Sugiyama, Aichi, Japan, assignor to Mitsubish isha, Tokyo, Japan

Filed Mar. 21, 1986, Ser. No. 84

priority, application Japan, Mar

53884[U]; M

54986[U]

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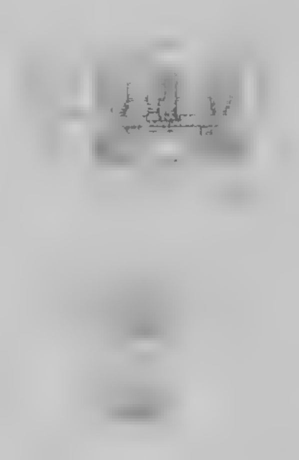
ı said driving axle receives power from

ɡ the clamping force produced by said amping means to increase the friction between said :formable elastic wheel and said rail so that backlash and ll are prevented when driving power is removed, and



topper ring mounted c xially with said at least than that f said

4,756,464

ETHOD OF MANUFACTURE OF COMPOSITE LAMINAR METAL PLATE

Ian Hardwick, Troon, Scotland, assignor to Imperial Chemical Industries PLC, London, England

Filed Oct. 1, 1986, Ser. No. 914,161

Claims priority, application United Kingdom, Oct. 30, 1985

a method of metallurgically bonding a composite laminar metal plate comprising a metal base layer, an outer metal layer and a metal interlayer, the said layers having different compositions and said outer layer and said interlayer having an elongation of at least 15%, said method comprising the steps of initially disposing the said layers substantially parallel to and separated from each other, the base layer being optionally supported on an anvil and being of a mass such that the combined mass of the base layer and the anvil (when present), is at least 4 times that of the combined mass of the outer layer and layer, disposing a layer of detonating explosive having a y of detonation in the range from 1500 to 3500 meters/ ljacent to the outer surface of the outer layer and detonating said explosive, thereby forming progressive collision fronts between the said layers moving at the velocity of the detonation, the improvement wherein said interlayer has a y disposed at a stand-off eeding 6 mm and not d interlayer and, said off distance which is 0.5 to 10 layer and is at least 3 times th base layer and said interlayer

---

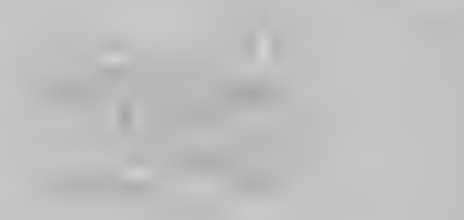
METHOD OF COLD WELDING

Anatoly S. Pranch, Riga; Pavel I. Gursky, Kiev; Vasily I. Averkin; Petr S. Neminuschy, both of Donetsk; Vladimir N. Smirnov, Moscow; Evgeny A. Baranov, Moscow; Dmitry V. Leontiev, Moscow; Jury I. Goroshkov, Moscow, and Vladimir N. Lozinsky, Moscow, all of U.S.S.R., assignors to Latvijsky Gosudarstvenny Institut, Riga, U.S.S.R.

Continuation of Ser. No. 723,467, Apr. 15, 1985, abandoned. This application Sep. 9, 1986, Ser. No. 904,839

Int. Cl.⁴ B23K *20/00, 20/12*

U.S. Cl. 228—115 13 Claims



1. A method of cold welding of workpieces for symmetric bodies of rotation, said method comprising,

pressing two workpieces having end faces tapering at different angles, the difference between the taper angles being slightly greater than zero degrees, said two workpieces being pressed into overlapping engagement with each other by applying an axial stress to at least one of said workpieces and relatively rotating the workpieces to be welded through a rotation of less than one revolution about an axis of rotation extending in the direction of the axial stress to produce shear-loaded cold welded bridges between the workpieces which avoid destruction due residual stresses

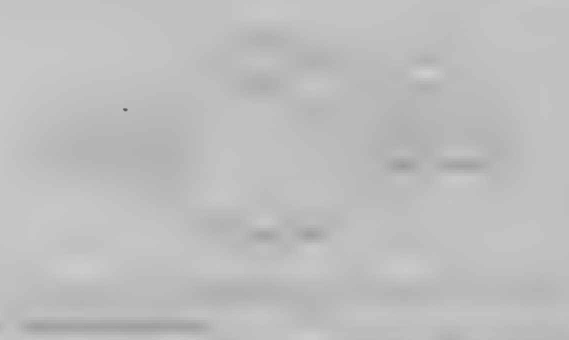
ETHOD OF MANUFACTURING A D HOUSING

David E. Peck, Rochester, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 845,109, Mar. 27, 1986, abandoned. This application Aug. 21, 1987, Ser. No. 87,838

Int. Cl.⁴ B23K *31/02*

28—165 5 Claims



shape having two top node portions, two bottom node portions, a right arm portion, a left arm portion and a nodal portion and internodal portion therebetween in which said two top node portions are aligned opposite said two bottom node portions, the right arm portion and combined length he blank to a l

less than the sum of said nodal portion and said internodal portion and the right and left arm portion having a uniform width while the internodal portion and nodal portion have a width which varies, the right arm and left arm portions of uniform width being about 70% of the total width of the blank, the remaining upwardly tapered nodal portions and internodal portions having relatively tapers, inner nodal slopes being substantially stee outer nodal slopes and the center of the blank having single notch,

heating said blank to a temperature range of at least 1350° to 1650° F. to bring the blank to a uniform temperature prior to bending,

and bending said blank in two stages within said temperature range

said bending in the first stage being at a first temperature which forms the central bowl portion and pushes in by bending the sides of the bowl portion to achieve the sem spherical configuration of the bowl portion having bent in sides while the top and bottom nodal portions and the right and left arm portions are left flat;

said bending in said second stage being at a second temper ture in said range which bends the two top nodes inwardl and the two bottom nodes inwardly while simultaneousl bending the left and right arm portions inwardly, an bending the internodal portions inwardly to thereby align the top nodes opposite the bottom node, the internodal portions, top and bottom opposite each other and the bent in portions at the right and left arms opposite each other thereby bend the right and left arm portions in the form U-shaped rectangular cross-sections with the differen receiving portion lying in the internodal span and tion zone intermediate the beam arms and the di portion, and form a half differential housing,

ud bending operation in said second stage further deforming the outer circular cylindrical area of said bowl to form a narrow stoved in U-shaped section with simultaneous narrowing of the corner where the metal is squeezed inwardly in a short transition zone in the fast fade bend at the boundary of tially greater ar transition zone arms, and

d U-shape rectangular cross section half differential hou ing being adapted to be welded along the top edges of t

4,756,467

DEFORMABLE ELEMENTS AND METHOD FORMING SAME

D. Schatzberg, Chester, N.J., assignor to Carlin

1986, Ser. No. 84

B23K 1/20

WINDOWED MAILER WITH TUMBLE-STYLE ENVELOPE FOR REMITTANCE DOCUMENT, HA RETURN MAIL-TO ADDRESS EXPOSED BY REMOVAL OF APERTURED COVER

Richard A. Jenkins, Wheeling, Ill., assignor to Moore Business Forms, Inc., Glenview, Ill.

Filed Feb. 20, 1987, Ser

Int. Cl.⁴ B6

joined to one another about at our corresponding marginal edg ngular, transversally-elongated sandwiched between sa initially adhesively joine

and initi with said of said mailer through said window ape return envelope mail-to address printed

l initial mail-to addres

MULTI-COMPARTMENT

Gerald M. Hansen, Maumee, Ohio, a ging Corporation, Toledo, Ohio

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tension in that order.

neans interrupting said cut line for hinging together the ut line edges of said connecting panels of said extensions t opposite sides of said cut line,

said extensions on said opposite edges of each outer side anel being folded toward each other along said hinges tween said end panels and said connecting panels, said

nsion panels of said extension means then being ad- le panel,

ded toward each other g said cut line and held in a collapsed configuration by thering facing connecting panels together, and

neans hinged from at least one of said outer side panels collapsed

4,756,470

AND BLANK FOR PACKAGING ICE CREAM OR THE LIKE

rd E. DePaul, West Chester, Pa., assignor to Rolph Clark-

987, Ser. No. 21,649

to said rear edge of said cover panel,

(f) said bottom panel being hingedly connected at its rear edge to said bottom edge of said rear panel.

(g) said front panel being hingedly connected at its l edge to said front edge of said bottom panel;

(h) said panels each including left and right end flaps connected to said left and right edges respectively forming hinge lines therebetween,

(i) said left and right end flaps including top, bottom, rear and front edges,

(j) said left end flaps being dimensioned such that when folded, the left end of the carton is substantially sealed for preventing leakage therefrom,

(k) said right end flaps being dimensioned such that when folded, the right end of the carton is substantially sealed for preventing leakage therefrom;

(l) said left and right bottom panel end flaps when folded being folded in first thereby forming the interior wall of the carton,

(m) said left and right bottom panel end flaps each having an embossed portion,

(n) said embossed portions being spaced from at least said top, front and rear edges of the corresponding bottom panel end flaps,

(o) said embossed portions each having front and rear edges, said front edges including at least first and second sections,

(p) said first sections of said embossed portions extend substantially parallel to the corresponding rear edges of said embossed portions, said second sections of said embossed portions forming an obtuse angle with the corresponding first sections of said embossed portions;

(q) said left and right front panel end flaps when folded, being folded in second such that said front panel end flaps overlap only a portion of the corresponding bottom panel end flaps,

(r) said front panel end flaps being non-overlapping with respect to said embossed portions when folded;

(s) said rear edges of said left and right front panel end flaps having at least first and second sections;

(t) said first sections of said rear edges of said front panel end flaps extending substantially parallel to the corresponding first sections of said embossed portions,

said second sections of said rear edges of said front panel end flaps extending substantially parallel to the corresponding second sections of said embossed portions whereby at least a portion of said rear edges of said front panel end flaps conform to the shape of the corresponding embossed portions;

(v) said left and right cover panel end flaps when folded, being folded in third to form at least a portion of the exterior wall of the carton,

(w) said cover panel end flaps overlapping at least a portion of corresponding front and bottom panel end flaps w folded

ft and right rear panel end fl fourth to form at least a he carton; and

said rear panel end flaps when f portion of the corresponding emb said rear panel end flaps may b embossed portion

4,756,471

MAIL BOX

Zuzach, RR#2, Grand Valley, Ont.

Filed Jun. 9, 1987, Ser. No. 59

Claims priority, application Canada, Jun. 24,

Int. Cl.⁴ B65D 91/00

232—17

receptacle for holding mail and

ans spaced upwardly from a lower end of said h a top closing the upper end of said housing, a chamber for said mail being located in said housing between said floor means and said top, several holes being formed around the perimeter of said housing at the lower end thereof and below said floor means, a door attached to said housing and capable of covering an opening formed in said housing, said door providing access to said chamber, and means for detachably and firmly connecting said housing to a post, said connecting means comprising a

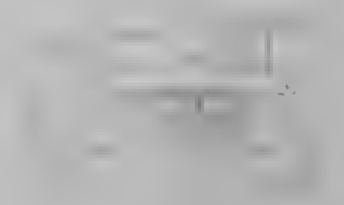
number of threaded fasteners and tubular sleeves f on at least some of said fasteners, wherein each of said holes is adapted to receive one of said threaded fasteners and at least one hole is formed in said floor means for receiving one of said threaded fasteners and where in said sleeves in use are positioned on their respective fasteners between the inside surface of said housing and the side of said post, said sleeves being capable of maintaining a desired distance between th de of the post and the inside surface of said hous

4,756,472

MAIL DELIVERY SIGNALING FLAG

rge M. Hammons, Rte. 6, Box 215, Dandridge,

Filed Aug. 21, 1987, Ser. No. 88,070



an elongate indicator arm having a flagged weighted end and being pivotally mounted at between said flagged end and said weighted side wall of the mail ient mass in relatio indicator flag to be normally disposed in a g cal position with said flagged end being weighted end, said flagged end being confi visible from a distance when said indicator arm generally vertically and above said weighted gger means for supporting the weighted end ator arm wit tal position a

arm to assum and trigger me

cator arm n tor arm and ha

reverse travel of said cal position when said

ELECTRONIC APPARATUS

Motohiro Takemae, Fujisawa; Tsuguo Okada, an Yamamoto, both of Yokohama, all of Japan, a Fujitsu Limited, Kawasaki

PCT No. PCT/JP86 00058

Date Oct. 16, 1986, PCT

Date Aug. 28, 1986

PCT Filed Feb. 12, 1986

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thermostat means,
t pressure powered air volume controller including
1 housing means having a first port connected to said low pressure pickup means, a second port connected to said bellows means, a third port connected to said high pressure pickup means and a fourth port connected to said bleed thermostat means;
longated movable means located within said housing eans and having a first end which engages a first side f a first diaphragm and a second end which engages a irst side of a second diaphragm;
t first chamber means formed in said housing means id partially defined by a second side of said first diaphragm,
t second chamber means formed in said housing means nd partially defined by a second side of said second aphragm,
spring means located in said second chamber means d biasing said second diaphragm against said second d of said elongated movable means,

nnecting said first and fourth ber means and having a first ice between said first port and said first chamber hereby said first chamber is connected to said low essure pickup means and to ambient via said bleed ermostat means,
second fluid path means connecting said second port ith nozzle means which discharges to ambient and hich coacts with said elongated movable means to ntrol the resistance to flow from said nozzle means hich coacts with said elongated movable means to ntrol the resistance to flow from said nozzle means d thereby the inflation and deflation of said bellows eans
hird fluid path means connecting said third port with id chamber means whereby said second chamber is nnected to said high pressure pickup means, and urth fluid path means containing a second orifice and nnecting said second and third flow path means ereby said high pressure pickup means can be con said bellows mea

4,756,475
GAS-FIRED BOILER

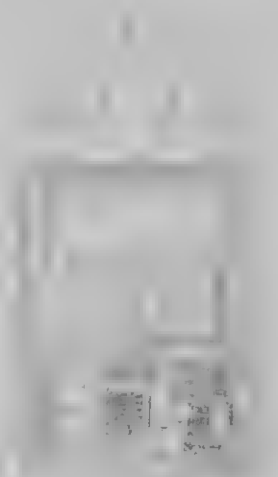
Bernard Vergne, Palaiseau, France, assignor to Elettro sud S.p.A., Tito, Italy
Filed Mar. 9, 1987, Ser. No. 22,528
Claims priority, application France, Mar. 7, 1986, 1
Int. Cl.⁴ F24D 3/00

37—56 13 C

A gas-fired boiler comprising: a burner connected to a gas supply path; a combustion chamber adjacent said burner, a heat exchanger located in said combustion chamber and connected to cold water inlet and hot water outlet paths of a space-heating circuit, said heat exchanger being adapted to transfer heat from a combustion gas produced by said burner to

gh said heat exchange.

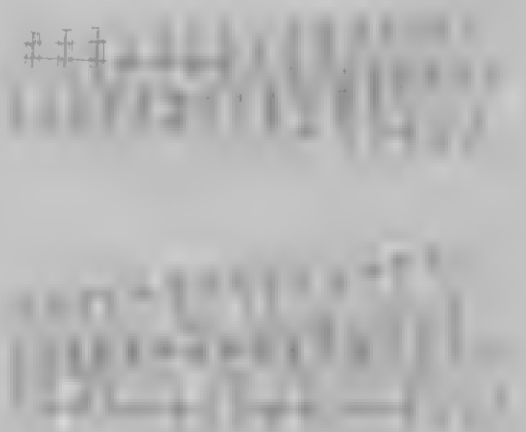
path; distribution, heat exchange and control components in said paths; and a set of inlet and outlet junctions for connection of the paths with exterior piping, wherein the gas supply path, the cold water inlet and hot water outlet paths and the h



water service path are each embodied at least to some extent as ternal passages in common mounting plate disposed between ns, and the distribution, heat s comprise an individual part

4,756,476
RAILWAY SWITCH

Günter Fasterding, Ilsede; Jürgen Frenzel, Froden; Norbert Jacoby, and Bernd-Joachim Kempa, both of Berlin, all of Fed. Rep. of Germany, assignors to Stahlwerke Peine-Salzgitter AG, Salzgitter, Fed. Rep. of Germany
Filed Sep. 5, 1986, Ser. No. 904 176
Claims priority, application Fed. Rep. of Ge 1985, 3531855
U.S. Cl. 238—44



inner rail
a second railway track diverging from said first railway track, said second railway track comprising a second outer rail and a second inner rail,
crossing region proximate a location w second inner rails cross, and
a plurality of Y-shaped sleepers supporting said first and second railway tracks in at least said crossing region, each of said Y-shaped sleepers having a branched end and a stem end
a first number of said plurality of Y-shaped sle disposed such that said branched ends thereof support sai first outer rail and said stem ends thereof support said first and second inner rails; and
f said plurality of Y-shaped sleepers being

4,756,477
FOR SUPPORTING RAILWAY RA TRACK ASSEMBLY USING IT

umaker, Mantua, N.J., assignor to Pand , United Kingdom
Filed Jul. 24, 1987, Se
Int. Cl.⁴ F01

ting rails on orientation n a particular area vay rail is to stand, a f the plate defining plate from the upper surface to the lower om said area to receive fastening elements ure the plate to an underlying support structure ortions of the plate defining a hole through e upper surface to the lower surface beside hole being elongate as seen in plan view with its bstantially parallel to the length of the plate, and a ending upwardly from the lower surface of the plate

earer said area, whereby a rail clip anchoring device verted T part on its lower side may have its inverted erted from above into said elongate hole whilst the

INJECTION N
Masami Endo, Kawasaki; Kakur Hirabayashi, Yachiyo; Yoshinobu Nakamura, Daijiro Hosogai, Kawajima, all of Japan, assi Senryo Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 6, 1985, Ser. No. 807 13
Claims priority, application Japan

aive assembl

passageway

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…ication with the interior of said barrel and with said primary passageway only when said closure member is in a closed position, said second drain passage disposed in communication with said groove on said surface of said annular member for continuous communication between said drainage passageway in said stem and said primary passageway,

…ting means for rotating said closure member between open and closed positions, said operating means …ding a rod secured to said valve stem and extending …ardly therefrom, and

…means disposed at a distal end of said … a support member secured to said … and extending therefrom for support of said rod at … distal end, said support member provided with an …ing therein, a bar secured to said distal end of said rod … extending therefrom, said bar having an opening … disposed for registry with said opening of said

4,756,480

APPARATUS FOR FLUSHING DRAINS

Michael W. Fish, P.O. Box 1522, Soquel, Calif. 95073

Conti… of Ser. No. 865,914, May 13, 1986, a… which is a continuation of Ser. No. 598,263, Apr. 9, 1984, abandoned. This application Nov. 2, 1987, Ser. No. 117,45…

Int. Cl.⁴ B05B *1/28*

U.S. Cl. 239—288.5 7 Claims

1. A drain clearing too…

an elongated rigid tube,

an axial nozzle at one end of said tube formed for directing a high velocity jet of water into the open end of a drain,

an outwardly flared flexible splash guard carried on the end of said tube adjacent to said nozzle in encircling relation thereto, said flexible splash guard being formed to flare increasingly outwardly to a rim thereof so that an inner face of said flexible splash guard becomes substantially tangent to a plane perpendicular to a longitudinal axis of said tube, said splash guard extending to a point downstream of an outlet end of said nozzle whereby water from said nozzle trapped between said splash guard and said surface is easily emitted by curling back of the rim of … flexible splash guard,

a manually operable quick acting valve in said tube at an … thereof remote from said nozzle,

a flexible hose connected at one end to the valve end of said tube and having an opposite end adapted for connection to a faucet or the like, and

a manually engagable handle mounted on said tube in l…ally spaced relation thereto for holding said tube in … …eaction forces created by said h… …nd against the action of said wa… …drain against said splash guard

4,756,481

APPARATUS FOR SPRAYING A FLOWABLE MASS AND INCLUDING AN AIRLESS SPRAY GUN

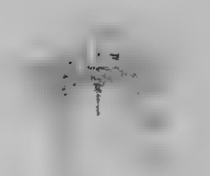
Hans Leuenberger, Bottighofen, Switzerland, assignor to Theo Krebs AG, Kreuzlingen, Switzerland

Filed Nov. 24, 1986, Ser. No. 933,97…

Int. Cl.⁴ B05B 9/0…

U.S. Cl. 239—332 7 Claims

1. Apparatus for spraying a liquid fluid in atomized form comprising an airless spray gun, a relatively long feed line, and an air-tight sealed storaged container, said feed line having opposite first and second ends connected respectively to said airless spray gun and said storage container whereby the airless …ay gun and storage container are in fluid communication, a …lume of liquid fluid in said storage container and in said feed



…gun having … for atomizing liquid fluid, and said airless …cluding means for pumping the pressurized

4,756,482

PROCESS FOR THE MANUFACTURE OF SINTERA… SILICON CARBIDE AND/OR BORON CARBIDE POWDERS

Peter Matje, Wiggensbach, and Karl A. Schwetz, Sulzberg, both of Fed. Rep. of Germany, assignors to Elektroschmelzwerk Kempten GmbH, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 837,093, Mar. 6, 1986, abandoned. This application Jul. 22, 1987, Ser. No. 77,096

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1985, 3508171

Int. Cl.⁴ B…

U.S. Cl. 241—16 …Claims

1. A process for the manuf… …ing silicon carbide and … …le which pro… …omprises

(a) forming an aqueous suspen… …bide and/or boron carbide

(b) introducing into said aqueous suspension at least one surfactant and at least one antioxidant selected from the group consisting of phenol antioxidants and arylamine antioxidants,

(c) grinding the aqueous suspension compris… …ide and/or boron carbide, the surfactant a… thereby forming a ground powder,

4,756,483

CRUSHER WITH MULTIPLE DRIVE MEANS

…, McConnell, Jr., Mesa, Ariz., assignor to Laurence …y, Gilbert, Ariz.

Filed Dec. 18, 1986, Ser. N…

Int. Cl.⁴ B02C 1/0…

…241—101.2 16 Claims

…improved jaw crusher including a supporting frame …e, a pair of opposed downwardly converging crusher …fining therebetween a space for passage of mater…hed, means supporting one of the jaws in floatin… the frame structure, means supporting the other

…VERTI… INTERCHA…

David J. Bechler, Menomonee Falls, and Step… Greenfield, both of Wis., assignors to Northern… …koe, Wis.

Continuation of Ser. No. 90…,662 … application Aug. 10, 1…

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wardly towards the inside surface of said housing
means for feeding said rock to the axial center of said rotor
means for rotating said rotor about said axis,
an annular crusher ring releasably and adjustably mounted to said inside surface of said housing on a substantially horizontal plane with said rotor to receive and fragment said rock propelled by said rotor, said crusher ring defining a circle and being comprised of segments, each of said segments comprising means for selective formation into crusher ring portions specifically intended for either autogeneous crushing, impact crushing, semi-autogenous crushing, or combinations thereof, said means including
vil bracket provided on each of said segments, each of l brackets having at least one leg having two ends, each said at least one leg being fastened at one end to and extending inwardly from said ring on a secant to the defined by said ring, each said second end being ected to a notched cross arm; and
togenous plate retaining bracket provided on each of l segments, each of said plate retaining brackets having an annular portion and a pair of spaced inwardly projecting radial portions, each of said projecting portions being supported by a vertically projecting gusset secured along a vertical edge thereof to said ring

4,756,485

NSER FOR MULTIPLE ROLLS OF SHEET MATERIAL

ymen J. Bastian, Media; Alan D. Frazier, West Chester, both of Pa.; Dean H. Heill, Manitowoc, Wis., and Richard D. ley, West Chester, Pa., assignors to Scott Paper Company,

d Mar. 11, 1987, Ser. No. 24 59
Int. Cl.⁴ B65H 19/00

ed rollers forming a feed roll nip, means for d he feed rollers to dispense web from the cabinet, mea abinet for supporting a first roll of web material wit eb extended between the feed roll nip, and means for supporting a second roll of web material with its web extended adjacent to the feed roll nip, the improvement comprising
eans, contacting the edge of the first roll, ha tion for sensing the diameter of the firs
ans, connected to the sensing means, f
sing means against the ed
ased transfer means for

at a ready position when the edge of the first roll resists movement of the sensing means, but when the edge of the first roll no longer resists movement of the sensing means, the sensing means and connected stop means moves to a second position which allows the biased transfer means to move to a transfer position where the extended web of th introduced into the feed roll

4,756,486

SCUBA DIVING REEL

Timothy A. Campbell, 1704 S. Sheridan, Bay
Filed Jan. 17, 1986, Ser. No
Int. Cl.⁴ B65H 54/02,

a leng ud spool and having a termi oject, such as a floating buoy,
so that as said reel and said object are relatively moved away from each other, the line will become taut to force said reel to rotate in one direction and allow line wound on the reel to be payed out;
anti-backlash means on said frame for preventing free wheeling of said spool when line is not being payed out,
means for driving said spool in a direction opposite said one direction for winding said line on said spool,
line tensioning means on said frame for yieldably receiving pinching and passing said line to maintain the portion of said line between said tensioning means and said spool taut when said spool is driven in said opposite direction but yieldable so as to allow the line to be payed
brake means on said frame for releasably locki to inhibit rotation thereof when the reel is not
said line tensioning means comprising
a pair of rollers rotatably mounted on said frame for squeezing opposite sides of said lin
endless resilient means bearing ag tween said rollers for restricting th

4, 56 48

SPIN CAST REEL WITH REAR DRAG AD

Yukio Hayashi, Tokyo, Japan, assignor to Izuzu Ko

d Aug. 3, 1987, Ser. No. 80 61
Int. Cl.⁴ A01K 89/01

hreaded, coaxial
ansmitting memb

r sliding drag

4,756,488

REEL CORD

Donald R. Cooke, Fridley, Minn., assig
fied Industries, Minneapolis, M
Filed Sep. 22, 1986,

through, said t

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...ELDABLE BASE PLATE FOR TAPE CARTRIDGES

...ester W. Newell, 919 Camellia Way, San Jose, Calif. 95117
...ivision of Ser. No. 815,151, Dec. 31, 1985, Pat. No. 4,624,405.
...This application Nov. 24, 1986, Ser. No. 933,819

...tandard magnetic tape data cartridges com...

...l plate having opposed planar surfaces and area di...sions conforming to standard dimensions for magnetic ...data cartridges, the plate being denser and substan...y thinner than an aluminum base plate of similar form and function, yet having the same or greater stiffness,

...a plurality of upright metal pins secured to the metal plate, said pins placed at locations for mounting tape hubs, rol... and forming a tape path, and

...f parallel strips of material adhered to opposed lateral ...n of the metal plate, adding thickness to the plate at ... locations in a cartridge receiving unit to the ...he metal plate mimics the thickness of an

4,756,49...

...IPSTICK RETAINER

..., 21 W. Parkway, Pequannock, N.J. 07440
Filed Aug. 1, 1986, Ser. No. 891,621
Int. Cl.⁴ B64D 47/00

...2 R 4 Claims

...eans for removably receiving an engine oil dipstick ...craft having an engine compartment hatch door, said ...ipstick having a rod portion of length greater than the height or width of the hatch door, comprising,

at least one hook or clip mounted to the inside surface of the engine compartment hatch door, said at least one hook or clip suitably dimensioned and positioned so as to removably receive the rod portion of the engine oil dipstick in an ...ation that the dipstick is parallel to the inside surface ...door and protrudes beyond an edge of the hatch

HIGH VELOCITY AERODYNAMIC BODY HAVING TELESCOPIC PIVOTAL TIP

Walter Kranz, Taufkirchen, Fed. Rep. of Germany, assignor to Messerschmitt-Bölkow-Blohm GmbH, Munich, Fed. Rep. of ...

Filed Mar. 31, 1987, Ser. No. 32,747
Claims priority, application Fed. Rep. of Germany, Apr ... 1986, 3612175

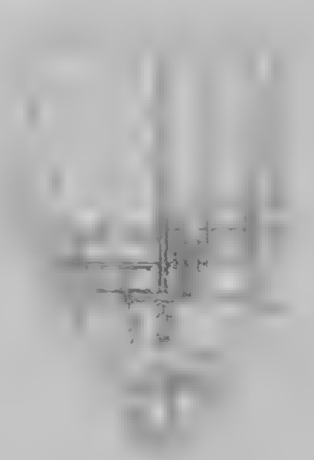
...locity aerodynamic body having means for stabilizing the aerodynamic body and for reducing oscillation thereof, said aerodynamic body having a longitudinal axis and a tip at a forward end thereof, said stabilizing means comprising, in the vicinity of the tip of the aerodynamic body, a substantially conical tip enclosure having a line of rotational symmetry, said conical tip enclosure being balanced about said line of rotational symmetry and being freely tiltably supported from all sides about a support point located on said line of rotational symmetry, said line of rotational symmetry comprising the longitudinal axis of the aerodynamic body, said conical tip being supported at a front end of a telescopic cylinder ...hich can be extended in the direction of the longitudinal axis ... the aerodynamic body and which is connected at another ... thereof to a housing of the aerodynamic body

4,756,493

DEPLOYMENT SYSTEM FOR SPACE RADIATOR

Timothy L. Camaret, Acton, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed Sep. 8, 1986, Ser. No. 904,325
Int. Cl.⁴ B64G 1/58

U.S. Cl. 244—158 R



1. A traveling deployment mechanism for con... folding kinematics of radiator panels of a space p... the space power system comprising:

(1) a heat generating source including a radiat...

...with the heat source,

(4) heat fluid pumps functionally as... conduit system and a manifold,

(5) a second fluid conduit system functionally associated with the manifold,

(6) a plurality of lightweight deployable radiator panels functionally associated with the second fl... system,

the deployment mechanism for controlling the ...matics of the radiator panels comprising

(1) a plurality of forming mandrels including ...drel surfaces associated with the second fl... system, and

(2) a plurality of forming roller means coopera...

4,756,494

VITAL SWITCH CONTROL CIRCUIT

...obert A. Kondratenko, Elizabeth Twp., Allegheny Co., and Jack Cunningham, Forest Hills, both of Pa., assignors to American Standard Inc., North Hills, Pa.
Filed Feb. 6, 1986, Ser. No. 826,749
Int. Cl.⁴ B61L 19/06, 5/06

...6—242 R 19 Claims

...mutually exclusive ...n positions, said vital switch control

b) a first negative-current path ha... another at least one normal contact wh... during such normal-switch position request, close... ...rst negative-current path,

c) a second positive-current path having disposed ther... least one reverse contact which, when actuated during a request to such reverse-switch position, closes said second positive-current path;

d) a second negative-current path having disposed therein another at least one reverse contact which, when actuated during such reverse-switch position request, closes said second negative-current path,

e) said first positive- and negative-current paths ...

(h) interlocking contactor means disposed

...VERSION KI...

...AUTOM...

...ob R. Putnam, Simi Vall... ...tries, Inc., Simi Valley, Calif.
Continuation of Ser. No. 743,309, Jun ... 4,660,789. This application Oct. 6, 1986
The portion of the term of this patent subsequ... ...2004, has be...
Int. Cl.⁴ G12B 9/...

...the panel and ... ...es the rad...

corn... selec... ented... recti... porti... slidi...

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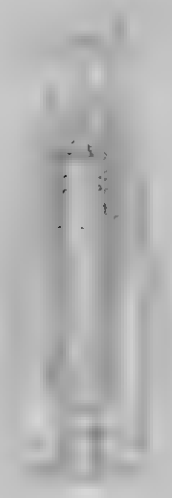
4,756,496

[illegible]NTINUOUSLY ADJUSTABLE LEVELLING COLUMN

Hans-Josef Hoass, Neuwied; Axel Knopp, Elteiborn; Herbert Freitag, Koblenz, and Peter Schlottermüller, Reinheim, all of Fed. Rep. of Germany, assignors to Stabilus GmbH, Koblenz-[illegible]endorf, Fed. Rep. of Germany

Filed May 21, 1985, Ser. No. 736,563

Claims priority, application Fed. Rep. of Germany, Jun [illegible]



[illegible] end (8a) and a second end [illegible] telescopic tube slideably guided along said axis within said [illegible] tube and having a first end within said guide tube, a [illegible] end portion (5) with a second end (6) adjacent said [illegible] end of said guide tube (8) and extending beyond [illegible] second end of said guide tube (8), said second end [illegible] (5) of said telescopic tube (4) being conically [illegible] towards said second end (6) of said telescopic tube [illegible] at least part of its axial length,

[illegible] gas spring (1) including a container member (2) [illegible] an outer cylindrical face, an axis and two ends (52, [illegible] piston rod member (3) axially extending through one [illegible] said ends, a blocking control member (60) axi[illegible] through the other (61) of said ends, said [illegible] member (2) being axially fixed within said [illegible] tube (4) by an annular fastening member (28, 13) [illegible] adjacent said first end of said telescopic tube (4) so [illegible] surround said piston rod member (3), said annular [illegible] member being shorter than said container mem[illegible] engageable with said telescopic tube (4) by rotat[illegible] engagement means substantially coaxially with said [illegible] tube (4) so as to be substantially coaxially ac[illegible] within said telescopic tube (4) and act axially [illegible] substantially axially directed end face defining said [illegible] of said container member (2), said piston rod [illegible] (3) passing through a bore of said annular fasten[illegible] member (28, 13) having a diameter smaller than the [illegible] of said outer cylindrical face and being axially [illegible] with respect to the first end (8a) of said guide tube [illegible] other end (61) of said container member (2) being [illegible] supported adjacent said second end portion (5) of [illegible] by axial supporting means (6) so [illegible] 2) is axially fixed between [illegible] 5) and said annular fastening

4,756,497

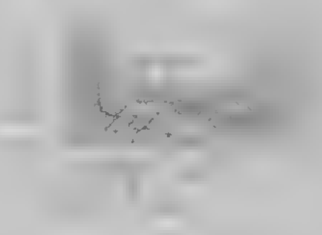
NON-TURNOVER BASE DEVICE

Yung-Huei Lan, 3F., No. 32, Lane 61, Han-Chuo S[illegible] Taipei, Taiwan

Filed Sep. 8, 1986, Ser. No. 904,91[illegible]

Int. Cl.⁴ F16B 47/00

U.S. Cl. 248—205 [illegible]



[illegible] cupule formed [illegible] through hole on its central portion, a retractable air [illegible] mounted on the upper portion of the through hole of said [illegible] retractable cylinder assembly including an inner and an outer cylinder, of which one is sleeved over the other, and [illegible] ligament member secured between said two cylinders, and wherein said inner cylinder of said retractable cylinder assem[illegible] [illegible] retractable within said outer cylinder, and the lower [illegible] said retractable cylinder assembly is connected with a cupule, of which the upper portion is connected with a supported object; and said air valve is closed with the bottom of the supported object; whereby when said device is placed on a table surface, said retractable cylinder assembly becomes [illegible] retracted, and the bottom surface of the supported object closes said air valve and causes said cupule to be attached to the table surface, and when said supported object is impacted, said supported object is limited from being lifted upwardly by means of said ligament between said inner cylinder and said outer cylinder, while the retractility of the air valve is still in contact with the bottom of the supported object; and when the supported object is lifted upwards to cause the said retractable cylinder assembly to stretch to a sufficient distance to allow the bottom of the supported object to be separated from the stretched air valve, and allow air to enter into said cupule through said air valve, so that the supported ob[illegible]

4,756,498

[illegible]RTICLE HOLDING DEVICE

[illegible] Box 483, Milltown, Wis. 5485[illegible]

[illegible] Jul. 17, 1987, Ser. No. 74,6[illegible]

Int. Cl.⁴ A47F 7/14

[illegible] surface portion there[illegible] a web intermediate [illegible] thereof

[illegible] the adjacent rearward portion of said body member a thin sheet of flexible non-stretchable material having one side having natural adhesion to the rearward surface of [illegible] body member and having it's other side adhesiv[illegible] [illegible]d for adhesion to a supporting surface, and [illegible] secured to said extension

4,756,499

CEILING HANGER

[illegible] 5604 - 140th SW., Unit B, Edmonds, Wash.

[illegible] section of which is substantially planar and the end sections of which are oppositely disposed to one another at the opposing ends of the intermediate section and rela[illegible] depend from and upstand from the inter[illegible] [illegible]n at substantially 90° to the same, respect[illegible] [illegible]ively depending end section of the hanger [illegible] the relatively lower end portion thereof, [illegible] upstanding end section of the hanger having [illegible] incision making means on the relatively [illegible] portion thereof, whereby when the intermedi[illegible] [illegible] of the hanger is disposed substantially parallel [illegible] in use, the relatively upstanding end section [illegible] same can be bayonetted into the ceiling to abut the [illegible] intermediate section broadside against the ceiling and [illegible] position the depending end section of the hanger [illegible] the ceiling as an attachment site whereby an ar[illegible] to about fifteen pounds in weight can be suspe[illegible] the hanger on the hook, and [illegible] intermediate section being of such length [illegible] thereof that when such an article is atta[illegible]

[illegible] and thus prevent the hanger from disengag[illegible]

[illegible]RT DEVICE FOR A WORK TOO[illegible]

[illegible] F. [illegible], 435 Mauna Loa Ct., Merritt [illegible]

[illegible] support guides for m[illegible] storage position adja[illegible] a generally horizont[illegible]

[illegible] a base adapted to hol[illegible] [illegible] second sections [illegible]

[illegible] to said base fo[illegible] [illegible] on said stat[illegible]

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to place said second section

ation with said tool support

Quercia, Bayside, N.Y.; Quinton J. Farrar, Wyckoff, Frederick A. Everett, Jr., Bloomfield, both of N.J., as- to Pfizer Hospital Products Group, Inc., New York.

Filed Oct. 7, 1986, Ser. No. 916,34

member having a first end rotatably secured about post member for selective rotational movement from ion to a second hanging position, said g a second end being configured for he support, said first end of said hook ber and said bracket being configured and dimen- d so that said hook member upon being rotatably ed to said second hanging position can be selectively sed relative to said post member so as to remain d generally in said hanging position, wherein said end is shaped in a generally hook-like configuration smallest distance of separation being smaller than diameter of the post member such that when said hook ber is selectively rotated to said second hanging tion, said first end can be selectively displaced relative aid post member by moving away from said post ber which is then securely advanced toward said lest distance whereupon said hooked end resiliently ads apart so as to lock said hook member about said second hanging

4,756,502

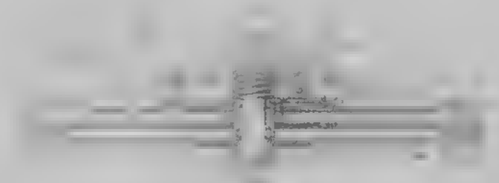
Fagan, Springdale, Ark., assign

container top surface and said seat base,

a generally horizontal slider plate having an lower surface and being received within said container the upper surface being contiguous to said container top lower surface, said seat base and said container top having aligned openings therethrough,

a shaft received in said aligned openings

a brake plate received on said shaft below sa and having an upper surface in engageme slider plate lower surface,



a spring compressed between said seat base and said s urging said shaft upwardly and thereby said brake plate upwardly against said slider plate to lock said seat base relative to said slider plate and said container

means to compress said spring by downward f shaft to thereby relieve the frictional engage brake plate against said slider plate to permit the m ment of said slider plate and thereby said seat base re to said container top; and

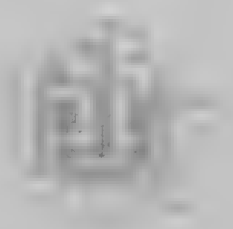
t formed, in part, by said

4,756,503

SLIDE DEVICE FOR AN AUTOMOTIVE

Yasuyuki Fujita, Akishima, Japan, assignor to Tach

Filed Nov. 4, 1986, Ser. No. 927,35



de device for use in an autom per rail including two belt-shape mounting portion extending upward from one of the lo gitudinal-direction edges of one of said bottom portions, and two side portions respectively extending upward substantially at right angles from the opposite edges of said two bottom portions, and in the longitudinal direction thereof, said mounting portion being disposed in said bottom portion, between said side portions,

a lower rail including a support portion respectively lo below said two bottom portions of said upper rail, and gement portions of a substantially U-shaped se which said side portions of said upper rail, d vertically upward at right angles from op

said lower rail and said side characterized in that each of a plate spring provided with projected portions which are disposed a responding to the right, left, and top port aid side portions of said upper rail such th

4,756,504

UTILITY LOCKING HOOK

Chamberlain, 79 Abbey Rd., East Hampton, Co

Filed Jun. 23, 1986, Ser. No. 877,036

the term of this patent subsequ 2002, has been disclaimed

r means being fabricated from metal stock having a lly circular cross-section and having a central elongated object support section which defines an axis, a first leg l with and extending at the first end thereof from one said linear section in a direction generally perpendicular axis, a retainer head portion integral with and extending d first leg at the second end thereof, a shaped portion t least part of said head portion providing a pair of ng generally parallel surfaces, a head protion apertur ng through said head portion and intersecting s, a second leg integral with and extending at t reof from the other end of said linear section in a nerally parallel to said first leg, said second leg than said first leg, and a mounting shaft integral nding at the first end thereof from the second g, said mounting shaft having an axis wh rally parallel to said axis of said linear se unting shaft having a tapered threaded portion which s from the second end thereof toward said second leg.

ated retainer plate means, said retainer plate mean ng a first aperture and a second ap rture being sized and shaped to permit means second leg and mounting shaft to pa rough whereby said retainer plate means may lled on said second leg for pivotally mounting sa ans to said bar means in a manner which will permit tation of said plate means for at least an angular dis- cement of 180° about an axis which is generally trans- rse to the axis of said linear support section while said te means remains pivotally mounted to said bar means, size and shape of said first aperture being insufficient permit the passage of said shaped portion of said head tion of said bar means therethrough whereby said plate ans cannot be removed from said bar means when said r means mounting shaft is engaged with a mounting face, said second aperture being sized and positioned tive to said first aperture to permit alignment thereof

Division of Ser. No. 687,121, Dec. 28, 1984, Pa

closure comprising

an elongate housing

bars defining a plu

and at least one elo

mass therethrough

cover means formed

normally closing

being displaceable

determined p

ss as said mass

Donald J. Meyers, and Laurence E. Jones, Ill., assignors to Barber-Colman Company, L

Filed Nov. 7, 1986, Ser. No. 92

tion of said stator rotates said stator body, a fu said rotor body extending into said valve sle

stem to said ro

a connecting se

sive with said

inside diamete n, the improvement wi

said connectin

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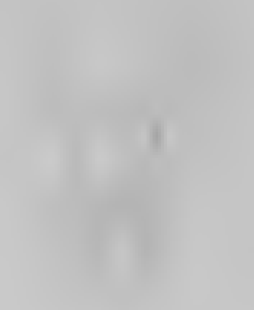
[illegible] mounting [illegible] ameter large [illegible] end so the [illegible] ting section [illegible] mounting pin

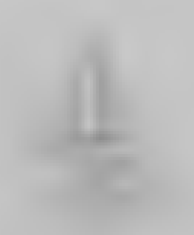


[illegible] portion and [illegible] said valve

4,756,5??

[illegible] E STEM EXTENSION MECHANISM

[illegible], 118 Somerset Rd., Glassboro, N.J. [illegible]



[illegible] tem to adjust fluid [illegible] g device structurally [illegible] stopping device stop [illegible] g rotation of the valve stem to a full open position to open [illegible] e valve and in a closed position to close the valve, a valve [illegible] m extension device comprising

[illegible] rod member having an upper end and of sufficient [illegible] th to position the valve turning means attached to the [illegible] r end at a position movably free of obstruction,

[illegible] ar on the end of the stem mated

[illegible] nd of the rod of a shape to d [illegible] al shape of the exposed end of the valve st [illegible]

[illegible] g a hole of a shape to interfit over the e [illegible] alve stem and coupled to move with [illegible] stem, the plate comprising a stop [illegible] function of the stopping device

[illegible] SILICON VALVE

[illegible] ph M. Giachino, Farmington Hills, and James W. Kress, Dearborn, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

[illegible] sion of Ser. No. 703,962, Feb. 21, 1985, Pat. No. 4,647,0 [illegible] This application Nov. 13, 1986, Ser. No. 930,462

Int. Cl.⁴ F16K *7/14, 31/02*; B05B *1/0* [illegible]

[illegible] 51—33 [illegible]

[illegible] planar silicon member having [illegible] passage the fluid, and

[illegible] second silicon member, separate from said first silicon member, having a planar silicon surface aligned with and relative moveable to said orfice for selectively opeing and closing said orfice thereby controlling the flow of fluid through said orfice, said second silicon member having a [illegible] mesa means, thicker than other portions of [illegible] licon member, having flat tops for sealing [illegible] fices

4,756,508

MOBILE LIFTING JACK

Richard L. Unger, and Thomas G. Bobick, both of Pittsburgh, Pa., assignors to United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Mar. 3, 1987, Ser. No. 21,271

Int. Cl.⁴ B66F [illegible]

[illegible] ack head on which the object to be lifted [illegible] elongate lifting arm means for lifting said [illegible]

4,756,510

[illegible] AND SYSTEM FOR INSTALL [illegible] OPTIC CABLE AND THE LIKE IN [illegible] TRANSMISSION PIPELINES

Kenneth G. Klamm, and Margaret A. Yaege, both [illegible] dence, Kans., assignors to Atlantic Richfield Compa [illegible] Angeles, Calif.

Filed Aug. 11, 1986, Ser. No. 895,61 [illegible]

[illegible] on of pipeline behind a [illegible] traverse through said s [illegible] iving means for receiving said pig at a [illegible] e opposite the [illegible] nected, said rec [illegible] ns for conducting fluid out of [illegible] id pig traverses said section of [illegible] he other.

[illegible] line while towing said cable through said [illegible] line and through said seal means, [illegible] removing fluid from said section of [illegible] conduit means while traversing sa [illegible] iving means, [illegible] rresting the movement of said pig [illegible] pipeline when it has reached said [illegible]

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mpressible material means journaled by said center ... rod means and partially filling the enclosed space ... ated by said inner and outer tube assembly means, ... d compressible material means being subjected to a ... load

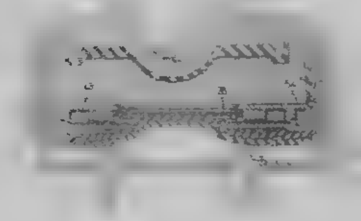
... per ring means secured to and encircling said inner ... be assembly means and dimensioned with respect to ... outer tube assembly to create a first seal means ... stop means removably secured in said aperture means ... said outer tube assembly means in an abutting rela... tionship with said keeper ring means whereby a bearing ... face is created therebetween such that the inner tube ... mbly means is locked within said outer tube assem... so that movement along and around the ... of the shock absorber means can take place ... d said enclosed space is generally

... er tube assembly means and being

... ng means encircling said inner tube ... sembly means adjacent said first end means; and ... er bushing housing means secured to said second end ... ns of said outer tube assembly means thereby encir... g ring.

... ELASTOM ...
... MBLY

... D. Carlson, Xenia; Jack E. Smith, Huber Heights, and ... A. Mezechuk, Kettering, all of Ohio, ... neral Motors Corporation, Detroit, Mich.



... d mounting m... ...d hollow body ... with a closed cavity that is filled with liquid ... partitioning said cavity into a primary chamber and a ... ndary chamber enclosed by said diaphragm, ... fice connecting said chambers so as to effect damping, ... ing decoupler means mounted for free limited recip... l movement in said partition and exposed on opposite ... to said chambers so as to effect cyclic volume change ... id chambers in response to alternating pressure ... up therein to thereby prevent forcing of the liquid ... ugh said orifice below a prescribed amplitude level of ... ive vibration of said mounting members; and charac... zed by ... control means for restricting the expansion of said ... bragm and stiffening same and for additionally acting

... including disabling said decoupler m...

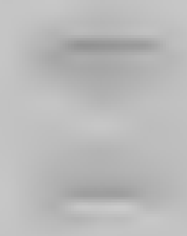
... LUID-FILLED RESILIENT BUSHING HAVING EXCELLENT AXIAL VIBRATION DAMPING CHARACTERISTIC

... oji Kanda, Inuyama, Japan, assignor to Tokai Rubber Industries, Ltd., Aichi, Japan

Filed Jun. 24, 1987, Ser. No. 66,90...

Claims priority, application Japan, Jun. 30, 1986, 61-100...

Int. Cl.⁴ F16F 5/00



... er sleeve disposed in radially outwardly spaced ... tion with said inner sleeve, and having a plurality ... pertures;

a sealing sleeve fitted on an outer circumferential surface of said outer sleeve, so as to fluid-tightly close said plurality of apertures,

a generally annular resilient member interposed between said inner and outer sleeves so as to resiliently connect the inner and outer sleeves, and having a plurality of pockets aligned with said plurality of apertures;

a plurality of arcuate partition walls disposed in said plurality of pockets, respectively, each of said partition walls being formed, as integral parts of said resilient member, so as to divide a radially inner portion of corresponding one of said plurality of pockets into two parts which are spaced apart from each other by said each partition wall in an axial direction of the bushing.

a plurality of orifice members each of which is fluid-tightly accommodated in a radially outer portion of the corresponding pocket such that said each orifice member rests on corresponding one of said plurality of arcuate partition walls, so as to fluid-tightly close said two parts and thereby define a pair of fluid chambers which correspond to said two parts and which are filled with an incompressible fluid, said each orifice member being held in fluid tight relation with an inner circumferential surface of said sealing sleeve, and constituting at least a part of orifice means for defining an orifice through which said two fluid cham-

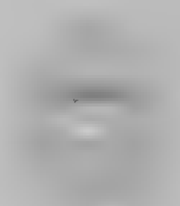
... IBRATION-ISOLATING SUPPORT DEVICE

... Kuze, both of Toyota; Zenji Okazaki; Satoshi Itoh, Toyota; Shuichi Okamoto, ... su; Motoo Kunihiro, Tsu, and Masahiro Ishigaki, Tsu, all of ... ignors to The Toyo Rubber Industry Co., L... Osaka a... Toyota Jidosha Kabushiki Kaisha, Aichi, both of, Japan

... of Ser. No. 763,344, Aug. 7, 1985, aband... ... This application Feb. 20, 1987, Ser. No. 18,104

Claims ... application Japan, Aug. 7, 1984, 59-16512...

Int. Cl. F16M 5/00, 13/00; B60G 15/04; F16K 15/14



1. A fluid damping vibration-isolating support device which comprises a main support body having a vibration-isolating base member made of a rubber elastomer and an enclosure member mounted on said base member and defining a closed chamber, and a partition plate means for dividing said chamber into two sub-chambers which are in communication with each other through an orifice provided in said partition plate means, said two sub-chambers being hermetically filled with a liquid,

said partition plate means comprising a separator member formed of an outer peripheral thick wall portion and an inner thin flat plate portion surrounded by said peripheral portion, said thin flat plate portion having at least one hole therethrough and without any obstruction therein and at least one further hole, said outer peripheral thick wall portion having said orifice therein; and

a stopper member having two opposed impervious plate sections opposing both faces of said flat plate portion of said separator member and overlaying said hole and said further hole, said plate sections being connected together by a joint section extending through said one further hole said connected plates being freely slightly movable in unison toward and away from said separator member to the degree that said plate sections are at least one of (1) in face-to-face contact with said faces of said flat plate portion to block fluid communication through said hole and said further hole and (2) separated therefrom to facilitate fluid communication through at least said one hole

4,756,516

... SILIENTLY DEFORMABLE ELEMENT USABLE AS AN END STOP IN A MOTOR VEHICLE SUSPENSION

Carlo F. Tondato, Turin, Italy, assignor to Polipren S. r. L., Turin, Italy

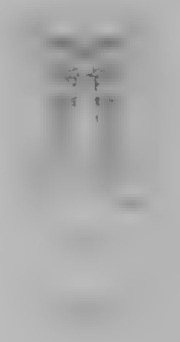
Filed Mar. 14, 1986, Ser. No. 840,417

Claims priority, application Italy, Mar. 19, 1985, 53145

Int. Cl.⁴ F16F 1/44

U.S. Cl. 267—153 9 Claims

1. A resiliently deformable element made of an elastomeric material having a microcellular structure usable as an end stop in a motor vehicle suspension, the said element having a tubular form with an axial hole into which is introduced the rod of a shock absorber, an upper end adapted to engage against a ... g of the motor vehicle body and a lower end ... a surface of the casing of the shock absorber ... characterized by the fact that it includes a first ... delimited internally and external... first part and projecting axially therefrom, the annular a... any section of the said second part taken on a plane orth... to the longitudinal axis of the element being less ... annular area of the section of the said first par... such plane, and the axial length of the said se...



... less than that of the said firs... section of said second part take... longitudinal axis of the element having: (a) an outside diameter less than or equal to that of said upper end, and (b) an inside diameter greater than or equal to that of said upper end, so that axial compressive force on said element does not ... sive flexing.

4,756,517

STRUT SUSPENSION STRUCTURE OF AUTOMO... VEHICLE WITH VARIABLE GEOMETRY

Toshihiko Kakimoto, Hatano, Japan, assignor to Nissan ... Company, Limited, Kanagawa, Japan

Filed Sep. 4, 1985, Ser. No. 772,612

Claims priority, application Japan, Sep. 5, 198...

Int. Cl.⁴ B60G 11/14, 11/62; F16F ...

U.S. Cl. 267—2...

a strut assembly having a lower end connected to a ... wheel for displacement with the latter and an upper ...

a suspension support disposed between said upper e... said strut assembly and a vehicle body for displac... connecting the upper end of the strut assembly ... vehicle body, and

means, responsive to displac... strut assembly with respect ...

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...rio, Colombes; Herve Le Pivert, Paris, and ... at, Boussieres, all of France, assignors to Compagnie ...

... ated opposite ... gripper head and includes a ... hich is located in oppositely- ... ar V-section channel of the ... ylindrical rod ... d axis of rota- ... annel and said ... d being such as to define an axis of rotation ... dingly permits a pivotal movement of the ... ber with respect to the head, said flat surface ... g member extending from its V-section chan- ... a point beyond the V-groove of the gripper ... g capable of elastic deformation when said ... ember is brought to bear on a ... al fiber which has been laid ... n said rectilinear V-groove.

... ping means includes at least one spring ... ove the flat surface of the holding member ... irst flat surface of the gripper head by causing pivo- ... lacement of one surface with respect to the other ... it said rod axis of rotation.

... ded by the elas ... lding member, ... in said fiber hol ... part of the ri ... vertically par ...

... the gripper hea ...

4,756,519

...RANGEMENT IN CUTTING BOARDS

...a, Barrgatan 19, S-335 00 Gnosjo, Sweden
... Oct. 29, 1986, Ser. No. 924,338
... application Sweden, Nov. 4, 1985, 8505...

... he side edges of a board having a ... s and the other side edge of the board ... projection so that one rectangular board can be interlock... rectangular board to form the cutting surface ... interlocking a projection on one board with a re... er board, and further including a guide for the slicing of bread, which guide has a base corresponding in size and shape to a projection of a board so that the base can be inserted in an unused recess of a board forming the cutting surface and a plurality of upstanding guide members mounted on the base and aligned in a row, with the guide members spaced apart a sufficien... other to receive a knife blade between adjacent ... bers.

... WEIGHTING AND AP... POSTAGE TO MAIL

Jack G. Clark, Jr., Grand Prairie, and Steven C. Derby, Duncanville, both of Tex., assignors to Bell Howell Company, Del.
Filed Mar. 25, 1986, Ser. No. 844,004
Int. Cl.⁴ B65H 29/...

... pe having a first side and a se... mprising:

(a) a support structure,
(b) an envelope transfer cag... support structure,
(i) said envelope transfer cage having an envelope receiving opening and being adapted for receipt of an envelope through said opening while said cage is in a first selected position and for transfer of an envelope therefrom at a second selected position;
(ii) said support structure including transfer cage positioning means selectively operationally aligning said transfer cage between the envelope insertion apparatus and the postage metering apparatus; and,
(c) motor means including a transfer cage drive mechanism
(i) said transer cage drive mechanism selectively rotating said transfer cage to orient said transfer cage to said first position to allow receipt of an envelope from the envelope insertion apparatus with said envelope horizontally aligned and such that the envelope is received through said cage opening along a path generally perpendicular to an axis of rotation of said cage; and, said transfer cage drive mechanism further selectively rotating said trans... ge to orient said transfer cage to said second ... wherein the envelope has been rotated about ... of rotation approximately 180° and is generally horizontally aligned and to thereafter transfer the received envelope through said cage opening to the postage metering apparatus;
(ii) said transfer cage drive mechanism pos... transfer cage for receipt of the envelope ... envelope side facing generally upwardl... transfer cage drive mechanism further, thereafter, positioning said transfer cage to transfer a received envelope therefrom, with the first envelope side facing generally downwardly,
(d) whereby an envelope, having been transferred into said envelope transfer cage from the envelope insertion apparatus ... l to the postage metering apparatus and ... ted from the first envelope side facing ... vardly

METHODS AND APPARATUS FOR TURNING FLAT ARTICLES

...uel W. Martin, Weston, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed Mar. 12, 1987, Ser. No. 25,249
Int. Cl.⁴ B65H ...

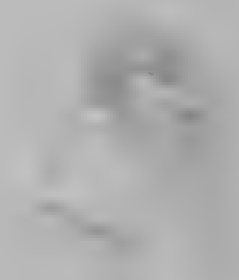
1. Apparatus for turning flat articles, comprising
means for receiving a serial stream of said articles trav... along a first linear path, said means including a nonrotating surface,
means for rotating each of said articles through a preselected angle and for steering each of said articles in a preselected angle and for steering each of said articles in a preselected

... ller defin... surface incl... tracks a 90° ... in said sup...
means for guiding each of ... rotating and steering mea...
means for co... path paralle...
means for adjusting the height of said ... rotating articles of differing thickne...
drive means for enabling said roller t... apparatus is being operated in a firs... preselecting 180° as the desired am... articles, and

... tating for said article...

COMPACT ADJUSTABLE CHEST EXERC...

Alfredo R. Sandoval, Casilla 165, Tacna, Peru
... d Oct. 14, 1986, S...
Int. Cl.⁴ A6...



... and an outer surface, a thickness substantially less than ... length and width the outer surface having a first co... portion adjacent to the lower end p... base of a user's open palm, a convex p... the first concave portion and extend... the user's open palm, and a second c... the convex portion receiving the p... open palm at the base of the user... surfa...

... t leg and a second leg, and ... rst attaching means for attaching the upper end po... of the first palm-gripping plate to th... the V-shaped compression springs a... means for attaching the upper end ... palm-gripping plate to the second l... shaped compression springs so that ... the first and second palm-gripping p...

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ating face and rowing arm
l frame
; pad and mounted on said seat

ljustment means whereby the dis
grip means and the ground engag

TAPERED ELONGATED WEIGHT WRAP

Luther Walcutt, 2050 Elberon St., Rancho Palos Verdes

Filed Feb. 4, 1986, Ser. No. 825,9

weighting material distributed relatively uniformly along its length;

an elastic band attached to only one end of the enclosure for vrapping about a limb and inhibiting movement uning weight, and eans secured to the other end of the enclosure re is tapered to a narrower width at its vrapping in a spiral configuration about the limb, and the fastening means is releasably attachable to the wrapped enclosure, to secure the training weight in its wrapped configuration, and wherein the fastening trip attached to one face of the complementary strip attached

EXERCISE DEVICE

Robert Broussard, Los Angeles, Calif., assignor to Progressive Health and Fitness, Los Angeles, Calif.

Filed Feb. 19, 1986, Ser. No. 830,95

Int. Cl.⁴ A63B *13/00*

S. Cl. 272—123 9 Claims

1. An exercise apparatus comprising

(a) a pair of longitudinally separated weight plates for providing a movable weight-training mass and having respective centers for gravity,

(b) a generally cylindrical lifting bar extending generally longitudinally between the weight plates and mounted thereto at first respective locations on the plates offset from said respective centers of gravity;

(c) means for permitting rotation of the weight plates about the lifting bar as the apparatus is moved by a user;

(d) a leverage bar extending generally longitudinally between the pair of weight plates and mounted thereto for otation therewith at respective second locations on the eight plate means different from the respective first

ons, the leverage bar being positione
eight plate means about the lifting

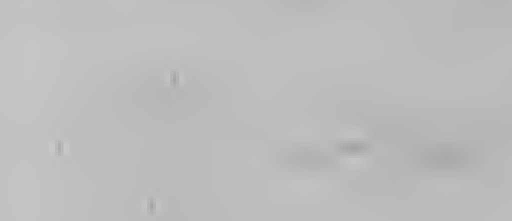
4,756,527

GRIPPING ASSEMBLY FOR USE WITH CABLE EXERCISING EQUIPMENT

Daniel R. Ledbetter, 231 E. 18th St.-#C, Costa Mesa

Filed Apr. 14, 1987, Ser. No. 38,05

Int. Cl.⁴ A63B *21/12*



1. A gripping assembly adapted for use with a cable type exercising device, said assembly comprising an elongate tubular gripping member, and elongate hand locking member constructed of a deformable resilient material and spaced rearwardly from said gripping member and extending substantially parallel thereto, a latching assembly disposed forwardly of said gripping member, and a strap member extending rearwardly from said latching assembly through and between said gripping member and said rear hand locking member and forwardly to said latching assembly such that upon said latching assembly being pulled from said gripping member, said strap member urges said rear hand locking member toward said gripping member thereby securing the gripping assembly to a user's hand and eliminating the need for the user to continue to grasp the gripping member during use of the exercise device

4,756,528

VIDEO SYSTEM FOR PASSENGER VEHICLES

Ramon Umashankar, 6201 N. Camino Esquina, Tucson, Ariz.

Filed Jul. 24, 1986, Ser. No. 889,144

Int. Cl.⁴ A63F *9/00*

U.S. Cl. 273—1 E 9 Claims

1. A video system for use in a passenger vehicle having an array of seats including a first seat having a recessed back and a second seat directly behind the first seat, said system comprising a video screen dimensioned to be receivable in the

ERALLY SPHERICAL OBJECT WITH FILAMENTS TO PROMOTE SURE CAPTURE

Scott H. Stillinger, Los Gatos, Calif., assignor to OddzOn , Calif.

273—58 B

plural, elongate, floppy, ery-diameter, ments, each having a cross-sectional dime extremely small in relation to its length, radiating in plural angularly offset planes in a dense, configuration from said core region to form a gener spherical object, with the filaments being sufficie floppy to collapse significantly on impact, thus to ab enough energy to avoid any tendency to bounce, and the filaments being sufficiently dense and floppy th large plurality thereof tend to thread their adjacent fingers of a user's hand upon conta ments with the hand during the act of catchi promote sure and quick capture of the dev

4,756,530

ROTATING SPHERICAL SHELL GAME

Karoly Karman, 2421 Trent Street, Victoria, British Col V8R 4Z4

Filed Jul. 7, 1987, Ser. No. 70,3

Mar. 17, 19

Cl.⁴ A63B *37/00*

U.S. Cl. 273—113

1. A puzzle game or toy comprising

(a) a first spherical shell of a size that can be readily manipulated by hand and made of hard plastic or metal material and having over its surface a multiplicity of c cut or formed therein in a random pattern

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e first but having an larger than the outer diameter of ll and mounted over the first shell ells are freely rotatable relative to

d in its surface such that at only one he two shells, the two patterns of in line with the one large hole in the the one large hole in the inner shell

ed inside the hat it will pass other holes

D PROCESS FOR MULTIPLE WINS IN ONE GAME

155 Clearview Dr., Williamsville, N.Y. 14221, and Joseph Carlisi, 3717 Evansdale Dr., Doraville, Ga. 30340
Continuation-in-part of Ser. No. 828,019, Feb. 10, 1986, andoned, which is a continuation-in-part of Ser. No. 287,903, Jul. 29, 1981, abandoned. This application Aug. 17, 1987, Ser. No. 85,751

1 game apparatus having the following winning

ns for preselecting up to "Y" possible winning numbers from a given group of numbers, "Y" being an amount of indicators in said apparatus, a number of said group of numbers is a winning number if it appears on any one of said indicators,

ns for awarding a win when the number selected at a n location corresponds to the winning location; and s for preselecting said numbers in which said num ars in at least two of said winning indicators; dicators comprising at least two independent identical numbers indicated thereon and pping positions provided thereon, a

eously simultaneously providing the winning numbers of at least two winning means of 1-3 above and display means for displaying said final stopping positions

6 A novel game process comprising the following steps

(1) preselecting up to "Y" possible winning numbers from a given group of numbers, "Y" being an amount of indicators in said process, a number of said group of numbers is a winning number if it appears on any one of said indicators,

(2) preselecting or predicting at least two numbers which become a win when a number preselected at a given location corresponds to the winning location; and

(3) preselecting said numbers in which said number of occurs in at least two of said winning indicators,

and providing winning indicators that comprise at least two independent means having identical numbers indicated thereon and having identical stopping positions provided thereon, activating said indicator, and a final stopping position on each of said indicators substantially simultaneously with providing the winning numbers of 1-3 above and providing display means for displaying said final

PLAYING SURFACE WITH ANSWERS IN FIRST FIE PROVIDING ANSWER IN SECOND FIELD

Stuart J. Kamille, Atlanta, Ga., assignor to Promotional Marketing Corporation, Westport, Conn.
Filed Feb. 26, 1987, Ser. No. 19,50
Int. Cl.⁴ A63F 9/0
U.S. Cl. 273—153 R 6 Claim

1 A game comprising a playing surface having two fields of play, the first field of play having printed thereon a series of questions having multiple choice answers, each answer being designated by a particular symbol; the second field of play being provided as a question, the answer to which is supplied by the symbols provided in said first field of play; wherein each symbol is a letter and wherein the letters provided by the answers to the multiple choice questions provide at least two answers for the second field of play, the correct answer and at least one incorrect answer

4,756,533

MULTIPLE JIG-SAW PUZZLE PROMOTIONAL LOTTERY GAME AND METHOD OF PLAYING SAME

James E. Hopkins, The Meadows, 14F, Ambler, Pa. 19002, and William H. Newbauer, 701 Grant Rd., Lansdale, Pa. 19446
Filed Dec. 24, 1986, Ser. No. 946,473
Int. Cl.⁴ A63F *9/10*
U.S. Cl. 273—157 R 12 Claims

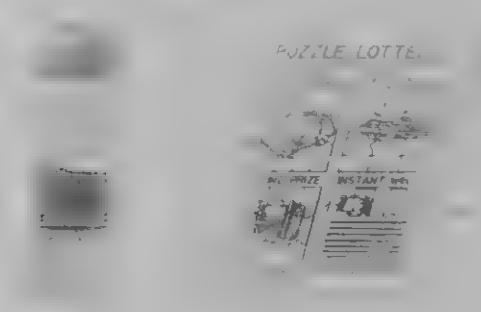
1. A jig saw puzzle lottery game apparatus, suitable for advertising and promotion, combining both chance and contestant's skill, which comprises

a game board containing multiple puzzle boards, each comprised of an identical jig saw pattern, to be played simulta-

neously, and a plurality of game cards, e puzzle pieces,

wherein each said puzzle piece is shaped to fit in on each said puzzle board, but said puzzle piece correctly solves a portion of only one said puzzle board,

each said game card is provided with means to conceal the puzzle pieces it c



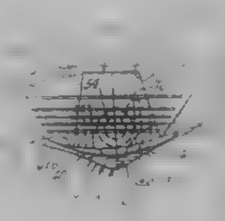
are randomly selected with respect to which puzzle board it may solve;

wherein selected game pieces are provided which do not solve any of the puzzle boards but fit in at least one space on said game board indicating immediate qualification for in instant prize.

4,756,534

GOLF CLUB

r C. 7851 Talbert St., Apt. 1, Playa del Rey, Calif. 90271
Continuation of Ser. No. 691,504, Jan. 14, 1985, This Nov. 10, 1986, Ser. No. 929,099
Int. Cl.⁴ A63B *53/04*
–171



1. A golf club head (10) having a front face 5, bottom and top surfaces, a toe and heel, the face of the club extending directionally laterally between toe and heel, the head having a stack of horizontally extending laminations, and an elongated protuberance extending rearwardly and forwardly below said laminations and along the bottom of the head and centrally thereof to define a keel (30), the keel having a lowermost surface a substantial portion of which is straight, in a front to rear direction, the improvement comprising:

(a) the keel having a forwardmost surface (61*a*) sloping upwardly and forwardly from the bottom thereof and intersecting the front face (17) to define a line of intersection (60*a*) substantially above the bottom level of the keel, whereby said forwardmost sloping surface (61*a*) on striking the ground during a golf swing wall transfer some force upwardly toward the head laminations tending to compress same and prevent delamination,

(b) said head also having auxiliary upwardly and forwardly sloped surfaces (61*b*) laterally of and merging with the uppermost extent of said forwardmost sloped surface, and which auxiliary surfaces intersect the head front face along lateral lines (60*b*) which are lateral continuations of

h said front face,

forwardmost sloping su tending at an angle between 40° and 50° relative to said straight surface portion of the keel, the surface of said head between said lateral lines of intersection (60*b*) at the front face and (73,74) at the underside of the keel vertically therebelow defining an angle between 40° and 50° relative to said straight surface portion of the keel,

d) the forwardmost sloping suface (61*a*) intersecting the bottom of the keel at said straight surface portion thereof and being substantially greater in height than the heights of said auxiliary surfaces (61*b*), the bottom of the keel being at the lowest level of the entire head,

(e) said keel having opposite sides (31) which slope upwardly and laterally, rearwardly of said forwardly and upwardly sloping front surface, said opposite sides being downwardly concave,

(f) said lateral lines of intersection (60*b*) being spaced ab the level of the merging of said keel opposite sides w the head bottom surface, and above the le concave sides

4,756,535

GOLF PUTTER

Michael R. Bradley, 126 Pine Rd.-Gulf Hills, Oc Miss. 39564
Filed Apr. 17, 1987, Ser. No. 39,16
Int. Cl.⁴ A63B *69/36, 53*
U.S. Cl. 273—183 D

1. A golf club comprising a shaft having a hand grip at upper portion thereof and a putting head secured to the bottom end thereof, said head having a substantially planar bottom face adapted to be disposed substantially parallel to the putting surface during a putting stroke, a top face disposed in spaced relation to said bottom face, a front face substantically normal to said bottom face and substantially normal and centered relative to the centerline of said head at the front edge thereof, said front face having a sweet spot at the intersection of the horizontal and vertical axes thereof defining an optimum ball engaging point on said front face, an elongated slot in said head open at said top face and said bottom face, said slot being substantially normal to said bottom face and to said front face and centered relative to the center of said head, a relatively thin wheel-like member having a width that is substantially less than its diameter mounted in said slot on an axis substantially parallel to said bottom face and to said front face and behind the sweet spot whereby said wheel-like member is arranged substantially normal to said bottom face, said wheel-like member being dimensioned whereby the bottom portion there

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bottom face to provide a ground-engaging ... pper portion thereof is visible at said top face, ... f said wheel-like member being aligned sub... nterline of the head through the sweet spot ... e direction of movement of the head

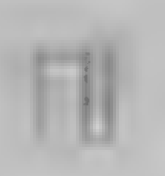
4,756,536

BRUSH SEAL

...Webster, ... Spa, England, assignor to Rolls-... plc, ...

Filed Oct. 14, 1987, Ser. No. 109,089

Claims priority, application United Kingdom, Dec. 6, 1986,



...nterposed between regions of high and ... between relatively movable members ... eal stages in series relationship with ... f high and low fluid pressure, each ... ity of filaments adapted, in operation ... p with one of said members and in ... the other of said members, the stage ... e region of low pressure being spaced ... age to define a chamber, means being ... from said chamber at a rate which ... tial across said stage ... ithin the operational

CYLINDER HEAD GASKET

...er, Burscheid, and Karl-Heinz Maus, Wuppertal, both ... Rep. of Germany, assignors to Goetze AG, Burscheid, ...d. Rep. of Germany

Filed Jul. 28, 1986, Ser. No. 889,925

Claims priority, application Fed. Rep. of Germany, Jul. 26,

...a cylinder head gasket for use in an internal combustion ... having a cylinder head accommodating a precombus... ...ber block having a bottom face; one part of the ...ace being adapted to engage said cylinder head gasket ...ng defined in the cylinder head gasket and adapted to ... tion engine; said opening having a circular boundary, ... improvement comprising a bay-like enlargement of said opening of the cylinder head gasket; said bay-like enlargement being adapted to be in alignment with said bottom face; and a plate-shaped insert of a high-temperature resistant material fully occupying said bay-like enlargement; said plate-shaped insert having an arcuate edge substantially coinciding with a length portion of said circular boundary; said plate-shaped insert being of a material different from that of said cylinder head gaske

4,756,538

DEVICE FOR CLAMPING DRILL PIPE AND THE LIKE IN MOUSE HOLE PIPE

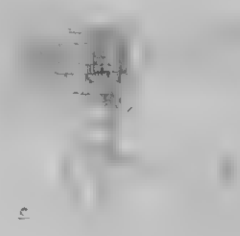
Chen Yuehui, and Jin Weiguo, both of Tienjing, China, assignors to The Science and Technic Department of Dagang Petroleum Administration, Tianjin, China

Filed Mar. 25, 1986, Ser. No. 843,706

Claims priority, application China, Apr. 1, 1985, 85200440

Int. Cl.⁴ B25B *5/08* E21B *19/16*

U.S. Cl. 279—28 7 Claims



1. A device for clamping drill pipe and the like in mouse hole pipe comprising

a flange vertically fixed on the upper end of mouse hole pipe with through holes equally spaced around the circumference.

a housing coaxially situated on an end surface of said flange, said housing being movable axially with respect to said flange within a limited distance and unrotatable with respect to said flange;

a clamping mechanism axially movable within a limited distance within said housing, when moving axially forced by the weight of the drill pipe being clamped, a part of said mechanism moving radially simultaneously so as to preliminarily grip said drill pipe, when screwing or unscrewing said drill pipe with an individual tool, the clamping members of said mechanism having a small radial displacement toward said pipe, thereby to provide a further clamp force corresponding to the torque of said screwing or unscrewing operation, when lifted axially together with said drill pipe against their weight, said part of said mechanism moving radially simultaneously in opposite directions to release said pipe;

a releasing mechanism forcing said clamping mechanism to release said drill pipe,

said housing having an axially arranged stepped circular bore, the upper portion thereof having a diameter symmetrically and laterally extending in opposite directions to form a rectangular chamber wherein the inner end surfaces of said chamber are inclined planes extending axially from the open end of the housing and the two inner lateral side walls having inclined slots near and parallel to said inclined planes, and having cylindrical pins attached to said lower end face of said housing and capable of loosely ... the through holes of said flange

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COLLAPSIBLE GOLF BUGGY WITH SEAT

John Sneddon, 3 O'Grady Place, Wanniassa, Act, 2903, Australia

Filed Jan. 23, 1987, Ser. No. 65,920

Claims priority, application Australia, Jan. 26, 1986, PH06572

U.S. Cl. 280—40 4 Claims

1. A golf buggy comprising a lower frame member supported by wheel means, an upper frame member pivotally mounted to said lower frame member to swing between an upright-position and a folded position lying adjacent to said lower frame member, said upper frame member including attachment means to which is pivotally affixed one end of an elongate buggy handle means; a pair of spaced strut members pivotally affixed at one end thereof to said lower frame member and extending up to and past said attachment means alongside said handle means, said strut members being arranged on either side of said attachment means, and said handle means slides between said strut members during folding, said attachment means slidably securing said handle means whereby, when said handle means is moved forwardly, said attachment means acts as a guide following said strut members as said upper frame member is moved into its folded position

4,756,540

WHEELED MECHANISM

Henry B. Crawford, Blue Hills, Blowing House Hill, Ludgvan, Penzance, Cornwall TR20 8AW, United Kingdom

Continuation of Ser. No. 725,825, Apr. 22, 1985, abandoned

This application Dec. 5, 1986, Ser. No. 939,252

Int. Cl.⁴ B62B *1/02*

S. Cl. 280—47.21 9 Claims

1. In a wheeled mechanism for transporting a load; said mechanism comprising,

a main frame including two main frame members defining a main frame plane in which the parts of the said main frame

at least two ground wheels mounted on said main frame so as to be turnable about a common first pivot axis, lying in said main frame plane,

an operating handle joined to said main frame at the upper end of said main frame, said operating handle extending at an angle with respect to said main frame plane on a first side of said main frame plane,

substantialy rigid secondary frame means having an uppermost end and a lowermost end,

pivotal connection means pivotally connecting said rigid secondary frame means to said main frame so as to be turnable about a second pivot axis substantially parallel to said first pivot axis, and

load platform means carried by said secondary frame mean at said lowermost end thereof,

the improvement wherein

said rigid secondary frame means includes an upper t... verse pivot member at said uppermost end thereof,

said pivotal connection means pivotally connecting said rigid secondary frame means to said main frame acting to interconnect said upper transverse pivot member at said uppermost end of said rigid secondary frame means t... main frame,

first secondary frame limit stop means acting to limit the pivoting movement of said secondary frame means with respect to said main frame in a first direction of pivotal movement to determine a first relative orientation of said secondary frame means and said main frame,

second secondary frame limit stop means acting to limit the pivoting movement of said secondary frame means with respect to said main frame in a second direction of pivotal movement opposite said first direction of pivotal movement to determine a second relative orientation of said rigid secondary frame means and said main frame, in which said second relative orientation said rigid secondary frame and said platform means ... second side of said main frame pla... side thereof

the length of said secondary frame means being less than t... distance from said pivotal connection means to the ground contacting points of said wheels by only a small amount such that in said first relative orientation of said rigid secondary frame means and said main frame the end of said rigid secondary frame means remote from said second pivot axis is engageable on the ground with said load platform being substantially parallel to and in contact with the ground and said ground wheels being also in contact with the ground, whereby said mechanism is in a stable configuration allowing said platform to be loaded and unloaded,

wherein said platform is raised from the ground upon relative turning movement of said rigid secondary frame means and said main frame about said second axis to said second relative orientation thereof whereby to permit transport of a load on said load platform with said load platform being substantially horizontal,

and wherein upon such relative turning movem... rigid secondary frame means and said main fra... from said first relative orientation to said second relat... orientation said load platform experiences no substan... tipping from said substantially horizontal position that

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,alin St., Bakersfield, (
l Jun. 3, 1987, Ser. No. 56,941

...nd trailer including a ...t and rear ends and a ...g a lower end portion ...nd and a forwardly ...including ...nting ...tend- ...e rea...

...g side walls extending ...rgins of said bottom ...rom a rear margin of ... ...ion of ...id rear wall being anchored to ...l end portions of said side wall ...anchored to said goose-neck ...o-rear extending oppo- ...el support arms includ- ...id of said main frame and ...wheel mounting structures, a rear ...said arms and journalled from said ...res, and a pair of opposite side rear ...y inclined elongated bracing members ...des of said wheel and including upper ...to the upper end of said standard and ...lative to the rear ends of the corre-

4,756,542

...PARABLE MULTIPLE-WHEEL...

...n Yang, P.O. Box 13-118, Taipei, Taiwan
Filed Apr. 29, 1987, Ser. No. 43,803
Int. Cl.⁴ B62K 15/00

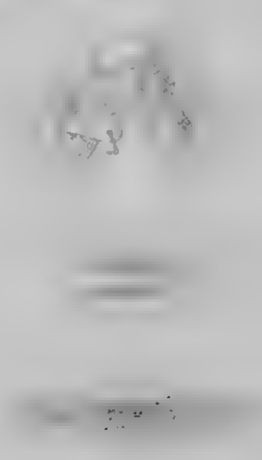
...eparable multiple-wheel cycle comprisi... ...per coupling means operatively coupling or uncou... ...ng a left top-tube portion of a top tube secured toward ...ear wheel and a right top-tube portion of a top tube ...rd a front wheel;

...ratively coupling or uncoupling ...secured toward the rear wheel ...d a right down-tube portion secured toward a front ...eel, and

...coupler operatively coupling or uncoupling a first ...ed to a brake or a clutch fixed on a rear ...d wire portion secured to a brake or

...ng means as coupled to ...t which comprises ...means including, a core tube having a contracted diameter smaller than a diameter of the left top-tube portion formed on the right end of the left top-tube portion, a female bore formed inside a left end of the right top-tube portion engageable with the core tube, a male-threaded portion formed on the left end of the right top-tube portion corresponding to the inside bore, a first union rotatably mounted on the left top-tube portion as limited by a left lug formed on said left top-tube portion proximate to the core tube and having a female-threaded portion formed inside a cylindrical casing from a right end of the first union adapted for engaging the male-threaded portion of the right top-tube portion and having a male-threaded portion formed outside the casing from the right end of the first union, and a second union rotatably mounted on the right top-tube portion as limited by a right lug formed on the right-tube portion proximate to the male-threaded portion outside the bore and formed with a female-threaded portion inside a cylindrical casing from the left end of the second union adapted to engage with the male-threaded portion of the first union, the length of said core tube being at least two times of the diameter of

...first wire portion mo...



...jacketed within a first sheath secured to a brake or clutch fixed at a rear wheel of the cycle having a free end portion preferably having a length at least two times of the wire diameter and a left lug formed on the first wire proximate to its end portion; a coupler member formed on the left end of a second wire portion movably jacketed within a second sheath secured to a brake or clutch lever provided on the front handle bar, including a female hole formed on its left end engageable with the end portion of the first wire, a male-threaded portion formed on the left end of the coupler member, and a right extension formed on the right side of the coupler; a first-wire union having a female-threaded portion formed on a right end inside a cylindrical casing of the first-wire union engageable with the male-threaded portion of the coupler member and having a male-threaded portion formed outside the casing, rotatably jacketed on the first wire as limited by a left lug and rotatably secured to the first sheath by a first bellows rotatably and telescopically secured between the first-wire union and the first sheath, and

a second-wire union having a female-threaded portion formed on a left end of a cylindrical casing of the second union engageable with the male-threaded portion of the first union and rotatably jacketed on the second wire portion as limited by a right extension and rotatably se... ...second sheath by a second bell... ...he second sheath.

4,756,543

ARRANGEMENT FOR CONTROLLED DAMPING OF PIVOTING MOVEMENTS IN AN ARTICULATED BUS

Christer Crossnow, Katrineholm; Jan H. Jonsson, Björkvik, and Lars G. Possberg, Vingåker, all of Sweden, assignors to Saab-Scania Aktiebolag, Södertälje, Sweden
Filed Feb. 5, 1987, Ser. No. 11,284
Claims priority, application Sweden, Feb. 10, 1986, 8600567
Int. Cl.⁴ B62D 53/00

1. Arrangement for controlled damping of pivoting move... ...n a vehicle with two vehicle units pivotally joined to ...her, particularly an articulated bus, comprising at least ...hydraulic dampers arranged between the vehicle units, a ...ydraulic control system hydraulically connected to the damp...ers, an electrical control system electrically connected to electrically operated valves in the hydraulic control system and to a number of sensors sensing various vehicle parameters, of which the vehicle speed is one parameter, the pivot angle between the vehicle units is another parameter and the direc...ion of pivoting between the vehicle units is a third parameter, ...id electrical control system being arranged, via said electri...ally operated valves to connect in the connecting lines be...ween the dampers in the hydraulic control system various ...rottles, representing various levels of throttling, in response ...o parameter values representing both the pivot angle and the ...ehicle speed said hydraulic control system further including ...lectrically operated bypass valves and said electrical control ...ystem is arranged, in response to signals indicating the direc...on of pivoting between the vehicle units, at least at vehicle ...peeds below a predetermined value, to actuate said bypass ...lves when the vehicle units are unfolded towards alignment

4,756,544

SKATING-TYPE CROSS-COUNTRY SKI

Roger Abondance, Rives, and Hubert Nomine, Saint Etienne de Crossey, both of France, assignors to Skis Rossignol S.A., Voiron, France
Filed Feb. 19, 1987, Ser. No. 17,186
Claims priority, application France, Feb. 19, 1986, 86 02762
Int. Cl.⁴ A63C 5/04

...S. Cl. 280—609 3 Claims

...a cross-country ski extending along a longitudinal ...ne and having a forwardly pointed and tapered shovel, ...rdly tapered tail, and an intermediate portion extend... ...etween and defining a centrally positioned binding-

...between 45 mm and 50 mm,

the tail is at its widest of a relatively small width of between 43 mm and 46 mm and being substantially smaller than the great width of the shovel and having at it's rearmos... a width of between 15 mm and 25 mm, and

the intermediate portion is comprised of ...rmediate portio...

...with outwardly diverging side edges fro... the ski at said binding-attachment location where it is of the small width to the shovel where it is of the great width, and

...rear intermediate portion of a con... the small width and extending bet... ...mediate portion and the tail, said ...tially parallel side edges ex... ...positioned binding-attach... intermediate portion to... ...intermediate portion

4,756,545

SAFETY SKI BINDING

Henry Freisinger, and Stritzl Karl, both of Vienna, ...assignors to TMC Corporation, Baar, Switzerland
Filed May 7, 1986, Ser. No. 860,638
Claims priority, application Austria, Jul. 5, 1985, 20...
Int. Cl.⁴ A63C 9/081

...ki binding comprising a sole pl... pivotally supported on a ski-fixed pivo... provided for preventing said sole plate fr... said ski, said sole plate having a housing... housing at a front end of said sole plate, said housing means having a front jaw which is pivotal between a ski shoe holding position and a ski shoe releasing position about a transverse axis on said housing means and carries a con... extends in a longitudinal direction of said... ...hoe holding position, on a front end of wh... a roller is rotatably supported, with which roller is associated a cam secured on said ski, which cam upon reaching a prede...termined angle of traverse of said sole plate relative to the longitudinal direction of said ski permits a pivoti... front jaw to said ski shoe releasing position, wher... ...provement comprises means within said housing m... ...ing an enclosed space and an opening opening out... in a direction toward said sole plate, said cam and... engaging roller being oriented within said enclos... control element extending rearwa... means on a rear end of said contr... ...ing movement of said front jaw... position t...

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pon said sole plate reaching said prede
e relative to the longitudinal direction
d means on said rear end of said control element to move to unblock movement of said front jaw to facilitate a free and unobstructed movement thereof about said
axis toward said ski shoe releasing position.

REAR WHEEL SUSPENSION DEVICE FOR FRONT AND REAR WHEEL STEERING VEHICLE

anji Kubo, and Kenichi Ohno, both of Wako, Japan, assignors
nda Giken Kogyo Kabushiki Kaisha, Saitama, Japan
Filed Mar. 13, 1987, Ser. No. 25,587
Int. Cl.⁴ B62D 17/00
5 Claims

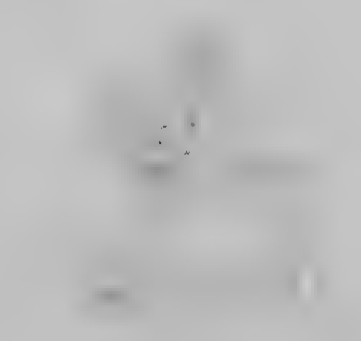
el suspension device for a front and rear wheel
wherein rear wheels are steered in an opposite
e front wheels at least under a

ively sharply increasing the caster angle of
rear wheels as the distance between the vehi
d the rear wheel is increased from a neutral
aintaining a smaller positive value as the
he vehicle body and the rear wheel is
neutral state

4,756,547

NSION AND STEERING CONTROL DEVICE FOR MOTORCYCLE

Frema, Besons, France, assignor to Elf France, Courbe-
France
Filed Feb. 20, 1987, Ser. No. 17,887
ms priority, application France, Feb. 21, 1986, 86 02394;
1986, 86 10403
Int. Cl.⁴ B6
280—668
11 Claims



for steering the wheel about a steering axis;

a first link having a first end articulated with a lower part of said lateral arm and a second opposite end connected to the body of the motorcycle;

a suspension system having a first end connected with an upper part of said lateral arm and a second opposite end connected to the body of the motorcycle, said suspension system including a shock absorber and a spring,

guiding means for guiding said lateral arm so that said steering axis is always maintained in the same longitudinal steering plane which is the median plane of the wheel;

steering transmission means separate from and independent of said suspension system and connected between said lateral arm and the steering control system for controlling steering of the wheel by said lateral arm in response to the

4,756,548

LEVEL CONTROL ARRANGEMENT FOR VEHICLES HAVING AIR SPRINGS

Wolfgang Kaltenthaler, Wennigsen, and Karl-Heinrich Schonfeld, Seelze, both of Fed. Rep. of Germany, assignors to WABCO Westinghouse Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany
Filed Oct. 10, 1986, Ser. No. 917,571
Claims priority, application Fed. Rep. of Germany, Dec. 5, 1985, 3542974
Int. Cl.⁴ B60G 13/06, 9/00, 17/04, 11/26

1. A level control arrangement for vehicles having air springs by which a vehicle frame is suspended in relation to at least one vehicle axis, comprising a control device connected between a pressure supply source and a valve means to raise and lower the vehicle frame by charging and exhausting the air spring, the valve means includes a safety valve which is controlled by pressure corresponding to the pressure of the air spring so that the pressure in the air spring can be reduced, and the valve means includes a first multi-way valve which is open to the atmosphere and a second multi-way valve which connects the air spring and the first multi-way valve; the second multi-way valve includes a control input, which can be activated as a function of the distance of the vehicle frame from the vehicle axis, the air spring can be connected with the pressure supply source for charging via on air dryer operated in drying operation; and the air spring can be connected via the air dryer in regeneration operation and the first multi-way valve with the atmosphere, so that the air spring can be connected by the safety valve for exhaustion via the air dryer and

4,756,549

SHOCK ABSORBER CONTROLLER

Ryuichi Kurosawa, Numazu; Hirohide Iwase, Mishima; Yukio Yamamoto, Susono; Ryushi Tanaka, Susono; Takashi Shirasu, Susono, and Susumu Oda, Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan
Filed Oct. 24, 1986, Ser. No. 923,041
Claims priority, application Japan, Oct. 26, 1985, 60-239775; Jan. 16, 1986, 61-7509; Feb. 5, 1986, 61-23366; Oct. 21, 1986, 61-250419
Int. Cl.⁴ B6
U.S. Cl. 280—707
11 Claims

1. A shock absorber
comprising.

vertical movement detection means for detecting a vertical movement of a body of the vehicle;

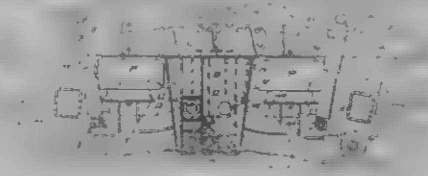
control means for delaying generation of a damping force alteration signal until a time point when the body is moving toward a mean position; and

damping force alteration means responsive to the damping force alteration signal for increasing a damping force of each shock absorber.

4,756,550

SUSPENSION ASSEMBLY WITH COMPOUND PARALLELOGRAM

ohn F. Raidel, Rte. 1, Box 400-M, Springfield, Mo. 6580
Filed Jan. 27, 1987, Ser. No. 7,328
Int. Cl.⁴ B60G 11/26
280—713
7 Claims



1. A suspension system for a vehicle having a frame and an axle comprising an axle seat assembly, an air spring connected between the axle seat assembly and the frame, an axle bracket rigidly connected to the axle, bushing means for pivotally supporting the axle bracket from the axle seat assembly to thereby hinge the axle to the axle seat assembly, a hanger depending from the frame, a pair of torque beams pivotally connected between the hanger and the axle seat assembly and defining a parallelogram for stabilizing the pitch of the axle seat assembly while also cooperating to define a lower composite torque rod extending between the hanger pivotal connections and the bushing means, and an upper torque rod spaced above the torque beams and pivotally connected between the frame and the axle bracket and defining a substantial parallelogram with the lower composite torque rod, whereby the resulting compound parallelogram stabilizes

the axle bracket and therewith t

4,756,551

HEAD RESTRAINT

Edward R. Muller, 5201 S. Main, Joplin, Mo. 64
Filed Jan. 20, 1987, Ser. No. 4,89
Int. Cl.⁴ A47C 7/3
U.S. Cl. 29—251

(a) a body includ
(1) a flexible
extending cavit
(2) a rigid reinforcement
within said cavity; and
(3) a resilient material posit
tween said body casing and said reinforcement means,

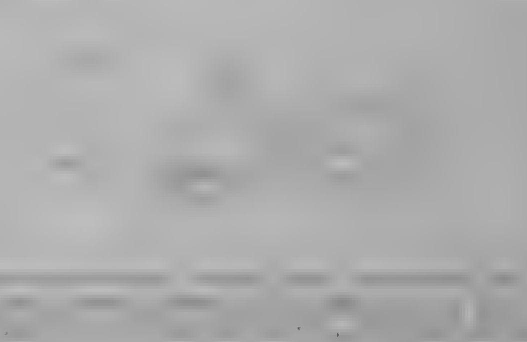
(b) an appendage connected to and projecting from said body and extending longitudinally therewith, said appendage being adapted for mounting said head restraint a including a flexible appendage casing enclosing an app dage cavity; and

(c) a longitudinally-extending horizontal rei positioned within said appendage cavity

4,756,552

STEERING MECHANISM FOR VEHICLE MULTIPLE STEERING WHEELS

Mario J. Martinez, Elgin, Ill., and Roy F. Engelbr
Fla., assignors to Elgin Sweeper Company, Elgin
Filed Sep. 8, 1987, Ser. No. 94,267
Int. Cl.⁴ B62D 1/24



wheels, and a wheel steering mechanism mechan
nected to said first and second steering wheel shaft
improvement comprising, in combination:

third shaft means rotationally connected at one end to
first steering wheel shaft means, said third shaft mea
being rotationally connected at its other end with
intermediate, intervening gears to gear means
interconnecting at substantially mutually pe
angles said third shaft means, said second ste

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4,756,553

SAFETY BELT SYSTEM

ars Y. Haland, Falsterbo, and Bengt O. J. S. Morner, Hovas, both of Sweden, assignors to Autoliv Development AB, Vargarda, Sweden

Filed Feb. 13, 1987, Ser. No. 14,500

Claims priority, application Sweden, Feb. 20, 1986, 8600785

280—806 10 Claims

hicle safety belt system to provide the automatic application of a safety belt to a person to be restrained and the subsequent removal of the safety belt from that said safety belt system comprising retractor means adapted to retain a length of safety belt, said retractor means being positioned at one side of a seat in said vehicle, a fastening means attached to the end of the belt extractable from said ttached to the vehicle stening means engag erealong, power transmitting means connected to the fastening means for moving the fastening means along the guide rail, reversible motor means to drive the power transmitting means for moving the fastening means along the guide rail between two end positions, and controllable means associated with said retractor means for preventing retraction of the safety belt into the retractor means rt of the movement of said fastening means two end positions, said controllable means ig operative such that, in use, the portion of the safety belt ying between the fastening means and the retractor means, during at least part of the movement of the fastening means between the two end positions, forms a loosely hanging loop, said controllable means also being adapted to permit retraction of the belt into the retractor means when the fastening means

LAMPING DEVICE FOR MOTOR VEHICLE SAFETY BELTS

unter Tibbe, Munich, Fed. Rep. of Germany, assignor to Tibbe KG, Erdweg, Fed. Rep. of Germany

CT No. PCT/EP85/00336, § 371 Date Mar. 7, 1986, § 102(e) Date Mar. 7, 1986, PCT Pub. No. WO86/00585, PCT Pub. Date Jan. 30, 1986

PCT Filed Jul. 9, 1985, Ser. No. 845,870

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1984, 3425199

Int. Cl.⁴ B60G 22/00

S. Cl. 280—806 14 Claims

or a motor vehicle safety belt comprising:

(a) a housing having a flat base wall along which said belt passes, an oblique front wall and a bottom wall,

(b) a first clamping member located in said housing having a first oblique surface slidably movable along said oblique front wall of the housing and a second oblique surface;

(c) a second clamping member located in said housing having an oblique surface slidably movable along the second oblique surface of said first clamping member and a flat surface along which said belt passes, said oblique and flat forming an angle sma first and second oblique surfaces of the first clamping member; and

(d) means for biasing said first clamping member in a direction away from the bottom wall of said housing, whereby

said second clamping member is urged by said ing member to clamp said belt by said flat surface of the second clamping member against the flat base wall of said housing, when the first clamping member is moved by the belt towards said bottom wall of the housing to a predetermined belt tension.

4,756,555

WING APPARATUS FOR SKIERS

William V. Bachmann, 22517 Ten Mile Rd., St. Clair Shore Mich. 48080

Filed Feb. 9, 1987, Ser. No. 12,659

Int. Cl.⁴ A63C *11/00*

1. Apparatus for creating aerodynamic lift to a downhill skier, comprising harness means adapted to be worn by said skier, a left wing structure operatively carried by said harness means, a right wing structure operatively carried by said harness means, connecting means carried by said harness means for operatively connecting said left wing structure as to thereby have said left wing structure operatively carried by said harness means and for operatively connecting said right wing structure as to thereby have said right wing structure operatively carried by said harness means, said left wing structure having a first longitudinal axis extending generally transversely of said skier, said right wing structure having a second longitudinal axis extending generally transversely of said skier, wherein said connecting means enables said left wing structure to be selectively rotatable about said first longitudinal axis while operatively carried by said harness means, wherein said connecting means enables said right wing structure to be selectively rotatable about said second longitudinal axis while operatively carried by said harness means, wherein said connecting means enables said left and right wing structures to be respectively rotatable about said first and second axes independently while operatively carried by said harness means, connecting means is effective for establishing and maintaining a fixed relationship of said first longitudinal axis with respect to said harness means even during rotation of said left wing structure about said first longitudinal axis, and wherein said connecting means is effective for establishing and maintaining a fixed relationship of said second longitudinal axis with respect to said harness means even during rotation of said right wing structure about said second longitudinal axis

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4,756,556

EASILY MANIPULATED BOOK

Judith L. Ader, 1374 Pine Valley Dr., and Shirley C. Browne, 11830 Donlin Dr., both of West Palm Beach, Fla. 33414

Filed Mar. 30, 1987, Ser. No. 31,774

Int. Cl.⁴ B42D *1/00*; B48D *5/00*; G09D *3/00*; G09F *19/00*

S. Cl. 281—15 A 20 Claims

1. A book assembly for holding a plurality of printed pages book form that can be easily manipulated by handicapped rs and uncoordinated children, comprising:

a plurlity of molded leaves, each of said leaves having a first broad surface and a second, opposite broad surface, printed-matter sheet holding means for removably holding a sheet of printed matter on a surface,

each of said leaves having a first set of said sheet holding means on said first surface and a second set of said sheet holding means on said second surface to hold a first printed page on said first surface and a second printed page on said second surface;

d. leaf-binding member means binding said plurality of leaves thereto in a manner permitting said leave to be freely turned and said book assembly to lie open at any selected page,

e. said holding means extending above said surfaces of said leaves to separate said leaves from one another to facilitate grasping each of said leaves individually for page turning, said

f. said holding means including means for engagi marginal edge portions of the outer face of said sheet when the inner face of said sheet is engaged by said surface of one of said leaves to thereby hold said sheet be-

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PRODUCING AND TESTING THE AUTHENTICI THE SECURITY DOCUMENT

Wittich Kaule, Emmering; Gerhard Stenzel, Munich; Jürgen Moll, Grünwald, and Gerhard Schwenk, Puchheim, all of Fed. Rep. of Germany, assignors to G.A.O. Gesellschaft fuer Automation und Organisation mbH, Fed. Rep. of Germany

Filed Dec. 23, 1985, Ser. No. 812,894

Claims priority, application Fed. Rep. of Germ 1984, 3446861

1. A security document comp security thread said security thread being a embedded within said document, said thread be detectable in incident and/or transmitted light sa thread further comprising a plurality of areas exten geneously along the entire length of the thread differing in terms of their detectable physical pr being arranged so that said detectable physical pr face of said secur

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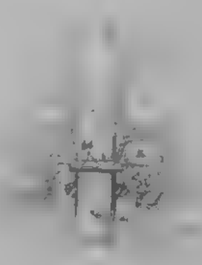
4,756,558

QUICK CONNECT TUBE CO

Henry E. Beamer, Middleport, N.Y., ass tors Corporation, Detroit,

Filed Jan. 25



restraining said O-ring against axial movement sheet metal nut and tube retainer member having therethrough and thread engaging means for r receiving and engaging said external threaded threadably connect said connector body and said tube having a radially outwardly projecting ann djacent one end thereof, said passage adapted to scopically pilot said one tube end on opposite s ing, said O-ring adapted to receive and peripl

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[illegible] erence position relative to said bead so as to be contacted and deflected outwardly thereby on entry of said one tube end into said passage and after travel of said bead therepast to resume said interference position to retain said [illegible]be in said connector body

4,756,559
SWIVEL JOINT FOR FLUID PIPES

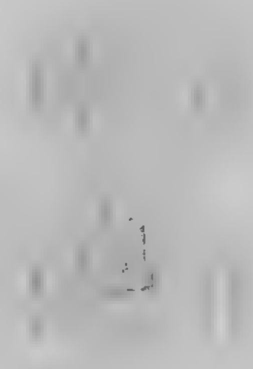
[illegible]hiro Shimada; Keishi Okada; Yushiro Takasugi; Tetsuyuki [illegible]iroe, all of Hiroshima, and Susumu Ishibashi, Takasago, all [illegible]f Japan, assignors to Japan National Oil Corporation and [illegible]itsubishi Jukogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed Dec. 23, 1986, Ser. No. 945,551

Claims priority, application Japan, Mar. 3, 1986, 61-44153

Int. Cl.⁴ F16L 39/0[illegible]

[illegible]S. Cl. 285—136 4 Claims



[illegible] it for connecting fluid pipes comprisi[illegible] [illegible]ents placed one upon another, each of [illegible] [illegible]mprising

[illegible]lrical stationary portion;

[illegible]drical rotatable portion surround[illegible] [illegible]on and supported rotatably thereon by a pair of verti[illegible] spaced apart sliding bearings, said stationary and [illegible]table portions defining an annular fluid passage there[illegible]een, said passage having a fluid inlet and a fluid [illegible]

[illegible] inlet pipe connected to said fluid inlet,

a fluid outlet pipe connected to said fluid outlet,

said rotatable portion having a pair of inclined edge surfaces, each of said bearings having an inclined edge surface which is complementary to one of said inclined edge surfaces of said rotatable portion and cooperates therewith to align the axis of rotation of said rotatable portion with the center of said stationary portion, said stationary and rotatable portions having therebetween a clearance for absorbing any positional variation by thermal expan[illegible] [illegible]of said portions relative to each other

4,756,560
FITTING FOR HOSE PIPES

[illegible]iklós Dobó, Breitscheider Weg 8, 4030 Ratingen 4; Manfred Penker-Holtermann, Dresdner Strasse 29, 4020 Mettmann; Ernst Rupprecht, Nordring 36, 5270 Gummersbach 1, and Rainer Vetterman, An der Lilie 33, 4030 Ratingen 1, all of Fed. Rep. of Germany

[illegible]ntinuation of Ser. No. 519,227, Aug. 2, 1983, abandoned. This application Oct. 20, 1986, Ser. No. 920,056

Claims priority, application Fed. Rep. of Germany, Aug [illegible]82, 3229691

Int. Cl.⁴ F16L 39/02

10 Claims

[illegible]ng a flexible [illegible] embedded therewithin and spaced radially from one another such that th[illegible] flexible hose includes a rubber outer covering layer and at least one rubber internal layer disposed between adjacent reinforcing layers, and a hose fitting attached to one end of the hose said fitting defining a flow path having a longitudinal axis and including a metal nipple to which each separate reinforcing layer is fixedly joined and which is connected in a firm, fluid-tight manner with the internal and covering rubber layers of the hose,

the nipple including a plurality of concentric shells which are firmly connected with one another and the nipple, each of said shells including annular portions extending parallel to said longitudinal axis and away from said nipple, said shells being spaced in a radial [illegible]

[illegible]tance from one another so that radia[illegible] [illegible]tained between adjoining shells,

[illegible]ls of the reinforcing layers covered with rubber at the [illegible]tending into the radial clearances between the annular portions of the shells with each reinforcing layer being joined to the surface of at least one annular portion and

[illegible]h of the reinforcing layers joined to the surface of at least [illegible]nular portion being fixed to said surface by vulcani[illegible]ion of the rubber,

[illegible]ud firm and fluid-tight joining constituting connection means for securing said one end of the flexible hose to said nipple so that tension is generally equally distributed to said radially separated reinforcing layers along [illegible] which said reinforcing layers are joined to said [illegible]

4,756,561
SEALING GASKET

Masayuki Kawata, Higashi-Hiroshima, and Kouji Takatou, Hiroshima, both of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Feb. 10, 1986, Ser. No. 827,454

Claims priority, application Japan, Feb. 14, 1985, 60-28005; Apr. 10, 1985, 60-54044[U]

1. An engine exhaust system comprising a first exhaust passage member defining a first exhaust passage and formed at an end of said first exhaust passage with a first mating surface, [illegible] second exhaust passage defining member defining a second exhaust passage and formed at an end of said second exhaust passage with a second mating surface, fastening means for securing said first and second exhaust passage defining members with said first and second mating surfaces opposed to each other with sealing gasket means interposed therebetween, said gasket means including a pair of thin sheets placed in contact with said mating surfaces, respectively, and an intermediate layer being yieldable and located between said thin sheets, said intermediate layer containing a thermally expandable material which expands from an initial dimension upon first application of heat above a predetermined temperature range and shrinks when the heat is relieved to a second dimension which is greater than the initial dimension, said intermediate layer including fibers of a heat-resistant material, said thermally expandable material being dispersed in said fibers and said thermally expandable material includes mica

4,756,562
LATCH ASSEMBLY FOR VEHICLES

Raymond E. Foster, Lowell; Andrew J. Holwerda, Wyoming; Lynwood C. Kraft, Kentwood, and Dale W. Riley, Wyoming, all of Mich., assignors to Ryerson & Haynes, Inc., Jackson, Mich.

Filed Nov. 26, 1986, Ser. No. 935,5[illegible]

Int. Cl.⁴ E05[illegible]

[illegible]ving a [illegible]l member movably mounted on a fixed portion of the [illegible]tal member being movable between open an[illegible] and defining a gap between an edge of the pi[illegible]member and the fixed vehicle portion when the pivotal member is in an open position, an improved latch assembly for securing the pivotal member to the fixed vehicle portion comprising

primary latch means adapted for mounting on one of the pivotal member and fixed vehicle portion and movable between a latched position for retaining a striker member on the other [illegible] portion and an unlatched position for releasing the striker member,

[illegible]ary latch means adapted for mounting on one of the [illegible]tal member and fixed vehicle portion and movable between a latched position for holding said pivotal member partially opened when said primary latch means is unlatched and released and an unlatched position allowing [illegible] pivotal member to be fully opened,

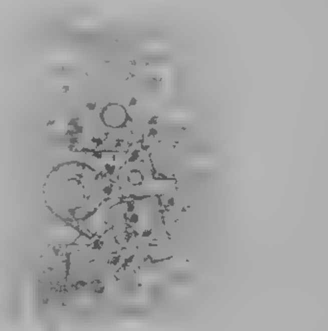
[illegible]le handle means for moving said secondary latch [illegible]s betwen said latched and unlatched positions

[illegible]ting means for mounting said movable hand[illegible] [illegible]he same pivotal member or fixed vehicle p[illegible] [illegible]hich said secondary latch means is mounted and mov[illegible] said handle means from a first position withdrawn from the gap between the pivotal member and the fixed vehicle portion into a second position in the gap when [illegible] [illegible]mary latch means is unlatched and released wi[illegible] handle means is positioned for easy access in t[illegible] [illegible] latch means to said unlat[illegible] [illegible] pivotal member after sa[illegible]

Stephen E. Garwood, Leighton Buzzard, England, an[illegible] Konchan, Warren, Mich., assignors to General M[illegible] [illegible]ration, Detroit, Mich

[illegible] Aug. 11, 1986, Se[illegible]

Int. Cl.⁴ F16[illegible]



[illegible]nd walls, [illegible]member ext[illegible] [illegible]ing member, mea[illegible] [illegible]rame member ove[illegible] [illegible]member seated in a[illegible] member and engag[illegible] port the frame men[illegible] housing member [illegible] flange seat[illegible] [illegible]nned distan[illegible] on the hou[illegible] unlatched [illegible]

[illegible]tented and [illegible] shoulder en[illegible] [illegible] shoulders of the [illegible] between and overl[illegible] and the fra[illegible] [illegible]der r[illegible]

VEHICLE DOOR [illegible]

[illegible]ichio Ikeda, Aichi, Japan, assignor [illegible]seikogyo, Aichi, Japan

Filed May 12, 198[illegible], Se[illegible]

Claims priority, application Japa[illegible] Apr[illegible]

U.S[illegible]

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e frame mounted to a door of said vehicle, supporting for rotation a latching member, said latching member including an elongated recess open to receive said striker, which rotates from a striker receiving position to a closed striker retaining position holding said door fast with said striker; said recess formed from first and second facing walls which extend from an open enctrance to a remote closed deep part, said recess having a width at said open entrance larger than said striker width, and a width at said deep part which is not larger than said striker width, said recess width decreasing from said entrance to said deep part and having an intermediate portion of the same width as said striker width;

(c) said first wall lying in the direction of rotation of said latching member during rotation from said receiving position to said retaining position, having a surface formed from a first elastic member extending from said open entrance to said deep part; and,

d) said second wall having a surface formed from a second elastic member extending from said entrance opening beyond a portion of said recess where the width is equal to said striker width, said second elastic member being formed of a material which is less easily deformable than said first elastic member

4,756,565

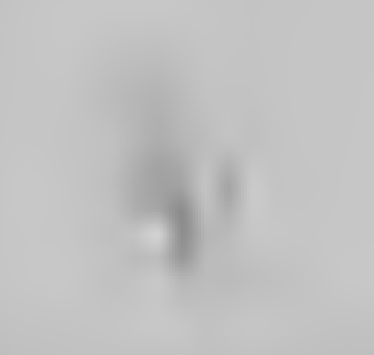
STRIKER ASSEMBLY

bert J. Myslicki, W. Bloomfield, and Carl D. May, Farmington Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 12, 1987, Ser. No. 2,44

Int. Cl.⁴ E05B 15/02

2—340 4 Claims



1. In combination with a vehicle having a compartment ich is defined in part by a vehicle panel having interior and erior sides and an aperture therethrough, a vehicle closure ich is mounted on the vehicle for movement between open and closed positions with respect to the compartment, and latch means mounted on the closure, a lock striker assembly mounted on the vehicle panel comprising, a lock striker support member having an aperture therethrough, a lock striker ounted to the support member for engagement by the latch eans to hold the closure in closed position, first stud means cured to the lock striker support member and extending ough the vehicle panel aperture to the exterior side of the hicle panel, nut means threaded on the stud means on the exterior side of the vehicle panel for securing the stud means to the exterior side of the vehicle panel, the stud means being of lesser size than the vehicle panel aperture to permit the stud means to be engaged from the exterior side of the vehicle panel and moved within the vehicle panel aperture to adjust the lock striker support member and lock striker relative to the compartment when the closure is in closed position and the latch means is engaged with the lock striker, and anti-theft means preventing release of the lock striker support member from the ehicle panel and movement of the closure from closed posi n to open position should the nut means be released, the i-theft means including second stud means mounted to the l and extending th

aperture in the lock striker support member, and second nut means threadedly securing the lock striker support member to the second stud means after the lock striker support member has been secured to the vehicle panel, the second stud means being of lesser size than the lock striker support member aperture to permit adjustment of the lock striker support member and first stud means relative to the second stud means

4,756,566

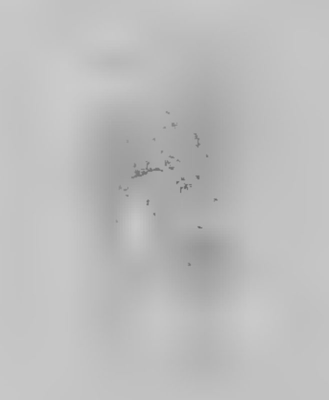
HIGH MECHANICAL ADVANTAGE ELECTRICAL RELEASE STRIKE

Duane K. Logas, San Bernardino, Calif., assignor to Adams Rite Manufacturing Co., City of Industry, Calif.

Filed May 5, 1987, Ser. No. 46,115

Int. Cl.⁴ E05C 21/0

U.S. Cl. 292—341.16 11 Claims



1. A release strike assembly, comprising

(a) a case having a side opening,

(b) a strike blt pivotally supported by the case between extended and retracted positions relative to the case

(c) a first spring yieldably urging the bolt toward extended position,

(d) a first latch element pivotally connected to and supported by the case at one pivot location for swinging movement within the case between first and second positions, the first latch element in its first position blocking the bolt against swinging toward its retracted position and in its second position allowing the bolt to swing toward its extended position, and

(e) a second latch element pivotally connected to and supported by the case at another pivot location spaced from said one location for swinging movement within the case between primary and secondary positions, the second latch element coupled to the first latch element to pivot with the first latch element, and in opposite rotary sens relative thereto, at such location

(f) and actuating means to effect pivoting

SELF-ADJUSTING BARREL HARNES

Merwyn D. Nilson, P.O. Box 2762, Rapid City, S. 1

Filed Jul. 13, 1987, Ser. No. 73,053

Int. Cl.⁴ B66C 1/18

U.S. Cl. 294—74

1. A self-adjusting lifting harness for handling cylindrica articles comprising

a pair of bracket means for clampingly engaging substantially diametrically opposed points of an article t ifted, and

a single-length choker means adjustabl f said bracket means and adapted to

for gripping thereof upon application of a lifting a central portion of said choker means, said choker means including an end loop positioned within each of said bracket means, each said end loop encircling an intermediate portion of said choker means which extends thr each of said bracket means

neans will tighte

d automatically

,756,5

EAR WINDOWPANE WIPER STOWAGE

akeshi Yamamoto; Takeshi Konishi; Iseo Hamasaki, and Hisa Fukutomi, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Mar. 11, 1987, Ser. No. 24,594

laims priority, application Japan, Mar. 20, 198

Int. Cl.⁴ B62D

A rear windowpane wiper stowage arrange mobile having a rear windowpane, comprisi

in communication with the hol ear windowpane,

means having a wiper blade assembly support for movement back and forth across the windowpane and retained at a home position when the rear wiper means is not in use, said wiper blade assembly at the home positi being completely accommodated witl exposed to the outside through the hat ar windowpane back and forth across the : wiper means is in use, ounted on the rear body structur

sed, respecti

Walter Trutier, and Karl Stenz, both of Wiesbaden, Germany, assignors to General Motors Corporati

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4,756,570

SUNSHADE SUPPORT ASSEMBLY

mas F. Cooper, Mt. Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 21, 1987, Ser. No. 52,479

Int. Cl.⁴ B60J 3/02

—97 R 3 Claims

comprising, i

ing from the one end thereof partially toward the other end thereof to provide the extension with a number of radially displaceable clamping portions,

generally L-shaped sunshade support arm including a pair of legs and an elbow portion, one of the legs of the support being generally cylindrical and extending through the lrical bore of the extension from the other end , cooperating engageable means on the arm and on ier end of the extension to axially locate the arm within the cylindrical bore of the ext member having an internal surface tapered co mentary to the tapered exterior surface of the extension of the support, the sleeve member being force fitted axially along the exterior surface of the radially displaceable ing portions of the extension to a position wherein rtions radially clamp the one leg of the support h a predetermined frictional force, the one leg of rotatable relative to to overcome the ed to the support

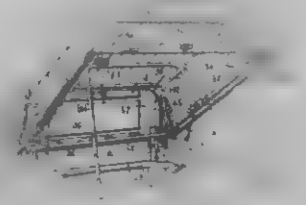
4,756,571

LOAD BED LIFT-ROOF COVER

lison H. R. Lake, Lathrup Village, Mich., assignor t-Van Inc., Lathrup Village, Mich.

Filed May 22, 1987, Ser. No. 52,986

Int. Cl.⁴ B60P 7/02 3/32



able to said load bed in such a manner as to extend upwa from the load bed forward wall; said cover also incorporatin a lift-roof structure having a roof, a cover left wall, a cov right wall and a cover rear wall; said cover rear wall in a hingedly attached closure; said lift-roof structure bei ally attached to the cover forward wall about a later proximity to a lower edge of the cover forward wall weatherproof fabric being interposed between said ward wall and said lift-roof structure, so that an encl formed above said lateral axis, allowing the lift-roof structu to be raised at the rear about said lateral axis from a lov closed position to a raised, open position.

4,756,572

BEVERAGE CONTAINER HOLDER FOR VEHICLES

Ronald A. Dykstra, Rockford, and Carl W. Flowerday, Holland, both of Mich., assignors to Prince Corporation, Holland, Mich.

vision of Ser. No. 725,831, Apr. 18, 1985. This application May 11, 1987, Ser. No. 48,32

1. A beverage container holder for a vehicle, comprising a first support having a vertically oriented recess a second support slidably received within said re movable from a first position within said recess ond position extended from said recess port including an articulated end portic ved to a substantially horizontal position when said d support is in said second position; and means on said end portion of said second support pivots from a folded position for storage to an open n defining in part at least one circular opening fo g a beverage container

4,756,573

VEHICLE SEAT WITH BUILT-IN INFANT AND TODDLER SEAT PROVISIONS

Gerald L. Simin, Holly, and Eugene J. Rogers, Rochester, both of Mich., assignors to General Motors Corporation, Detroit,

Filed Sep. 10, 1986, Ser. No. 906,234

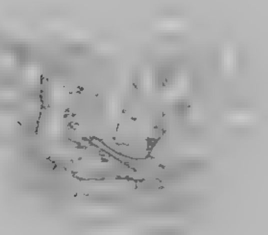
Int. Cl.⁴ A47C 13/00, A

Cl. 297—250

A vehicle seat with a built in

, femur seat cushion, and generally vertically oriented seat back ad eat cushion, said seat back including seat back frame with a pin and a fixably connected stop toddler seat pivotally mounted with respect to said se back frame whereby said toddler seat in a first forms a lower portion of said seat back and said seat in a second position provides a seating positi and generally adjacent to said femur seat cushio hild barrier with an arm pivotally mounted wi

back frame pin whereby said child barrier in a first position forms an upper portion of said seat back and said child barrier in a second position contacts said stop and prevents movement of a toddler seat occupant beyond a predetermined limit, and said child barrier in a third posi-



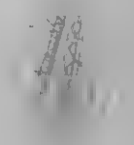
om outwardly and then pivoted forwardly away from said seat back frame to again contact said child barrier with said stop and whereby the extreme angular positions of said child barrier are limited by the bottom po slot engaging with said pin and said child ba

INFLATABLE CUSHION APPARAT VEHICLE PASSENGER SEATS

Rudolf Andres, Sindelfingen, and Hermann Moller, Gartringen, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Oct. 24, 1986, Ser. No. 922,951

Claims priority, application Fed. Rep. of Germa 985, 353784



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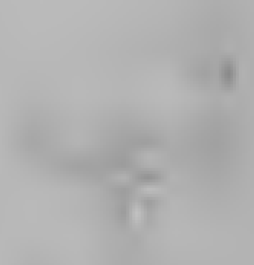
FRAME ASSEMBLY FOR

Peter Dicks, Cambridge, Canada, assigno Manufacturing Inc., Waterloo, Canad



VEHIC

rancois Bianchi, Valentigney; Al Francois Fourrey, Montbeliard, Cycles Peugeot, Valentigney, Fr

Filed Mar. 27, 1987,

ms priority, application Fran

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framework extending downwardly from said first pin, a control element connected to said lower end portion of the backrest framework, and a second pivot pin located adjacent to the front end of the seat framework pivotally mounting the first control element on the seat framework, a substantially vertical and slightly curved opening in the respective side wall in

is movably and guidedly engaged, means

ard second pin on the respective side wall, and a

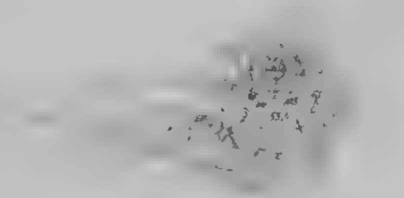
l element connected to said first pivot pin for

n in said opening and adjusting the height of

seat framework relative to the respective

LOCK MECHANISM FOR A CAR SEAT BACK AND RECLINER

an D. Berg, Oxford, and Juozas Duveinis, Sterling Heights, both of Mich., assignors to General Motors Corporation, Detroit, Mich.



1. In a seat assembly f
- a seat cushion support
  adapted to be mounted
- a backrest including a side hinge arm means pivotally supported by said seat frame means for pivotal movement about a first pivot axis between a normal upright position in which the backrest is generally vertically disposed, a forward folded position in which the backrest overlies at least a portion of said seat cushion and a rearward reclined position,
- and a locking mechanism for releasably locking said backrest in either of its normal upright or folded positions, said

opposite directions about said first pivot axis, said hinge arm means at its lower end having first and second arcuately spaced recesses,

- a detent lever means pivotally connected
  means intermediate its ends and carry
  adjacent one end which is receivable within
  second recesses in said hinge arm means to p
  backrest in its upright and folded positions, resp
- a second lever means having one end pivotally con
  said first lever means and its other end engage
  said detent lever means adjacent its other end ren
  ller means,
- neans for biasing said second lever means into engagement with said other end of the detent lever means to biasingly retain said roller means of said detent lever means in engagement with the lower end of said hinge arm

r end of said hinge arm means when th
noved between its upright and folded
ng the detent lever means and second lever means
noved in a direction in opposition to the biasing force
said spring means,

said first lever means, hinge arm means, second lever means and detent lever means being movable
first pivot axis in response to manual
backrest from its normal upright position to a recline position, and with said roller means remaining disposed within said first recess, and recliner biasing means opera-
connected with said first lever means to automat
iove said first lever means, hinge arm means, sec
r means and detent lever means about said first
e opposite direction to automatica
rom its reclined position toward
when said back rest is manuall

4,756,578

APPARATUS FOR REMOVING SHINGLES AND THE LIKE

Clay W. Mims, French Village, Suite 220-9, 2301 Midwestern Parkway, Wichita Falls, Tex. 76308, and Francis A. Theroux, 4110 Nakomis, Wichita Falls, Tex. 76301
Filed Apr. 13, 1987, Ser. No. 37,55

An apparatus for removing flat
face, comprising
- a mobile frame,
- a carriage pivotally carried by the mobile frame
- a blade pivotally attached to the front of the ca
  movable between an upper position and a low
  relative to the frame, the blade being positio
  substantially in contact with said surface when in th
  lower position to allow the blade to be pushed under one of the flat members;
- bias means for urging the blade into the lower position
- a pneumatic piston and cylinder carried by said mobi

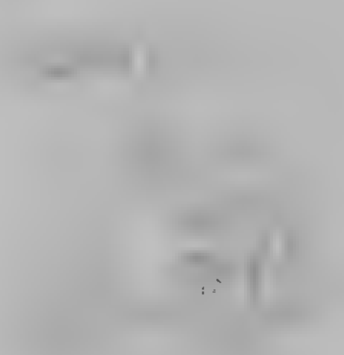
pneumatic cylinder to stroke the piston
able connected between the carriage and
cylinder for overcoming said bias means a

4,756,579

BRUSH FILLING METHOD AND FILLED BRUSHES

Anthony C. Boland, San Marino, and George R. Maxwell, Altadena, both of Calif., assignors to L.A. Brush Manufacturing Corp., Los Angeles, Calif.
Continuation of Ser. No. 716,985, Mar. 28, 1985, abandoned, which is a continuation-in-part of Ser. No. 682,552, Dec. 17 1984, abandoned. This application Dec. 15, 1986, Ser. No. 942,368

e term of this patent subsequent
004, has been disclaimed



stle receiving holes in

a particular he
heads about

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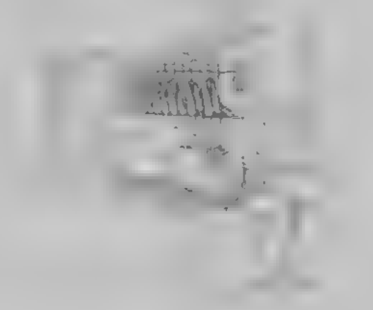
said closed end surface said divider walls to rotate about said hinge means and translate relative to said side walls to a position wherein the upper surface thereof are within said container and when said translatable member is translated toward said closed end surface said engagement means causes said divider walls to rotate about said hinge means and translate relative to said sides to a position wherein the upper surface extend above said container.

UPRIGHT DISH DRAINING DEVICE

L. Heien, 5704 Southview Rd., Laramie, Wyo. 82070
Filed Dec. 3, 1986, Ser. No. 937,484
Int. Cl.⁴ A47B 77/06



portion and wherein said equipped sink recessed therein, an upstand device including portions thereon for support iding plates, glasses and silverware therefro omoting gravity drainage of rinse water from d articles, said dish draining device inclu having front and rear sides and a low d lower marginal portion including an elongated upwardly opening catch basin extending longitudinally thereof and projecting outwardly of said front side for catching rinse water gravity draining from said articles, said catch basin including a horizontal length appreciably greater than its horizontal width measured at right angles relative to said horizontal length, said catch basin including a gravity drain outlet, a flexible drain tube having an inlet end operably coupled to said outlet and an outlet end positioned for direct discharge of water therefrom into said sink, said panel including support means for support thereof in upstanding position adjacent and generally paralleling said wall portion above said counter portion closely adjacent a side marginal portion of said sink, a wire frame mounted on the front side of said panel above said catch basin and including upper, intermediate height and lower horizontal bars extending between and supported from vertical opposite side bars, a pair of rows of inverted long and short U-shaped members opening toward and supported from said intermediate bar and spaced therealong, said long U-shaped members being slightly upwardly and outwardly inclined from the front side of said panel and said short U-shaped members being more greatly upwardly and outwardly inclined relative to said front side of said panel, said U-shaped members being adapted to receive inverted drinking containers thereover, a lower U-shaped member opening toward and supported from the lower ends of said opposite side bars and projecting outwardly from the front side of said panel said lower U-shaped member being upwardly and outwardly inclined relative to the horizontal, said lower U-shaped member including an outer bight portion generally paralleling said lower bar, a plurality of substantially transversely spaced apart inclined diagonal bars e between and supported from said bight portion and said lowe bar, the spacing between said diagonal bars being adapted to receive edge upstanding plate-like articles therebetween with peripherally spaced portions of said plate-like articles engaged with and supported from said bight portion and lower bar, said long, short and lower U-shaped members being disposed within a vertically extending area received within the confines of said catch basin

SCANNING OPTICAL SYSTEM FOR USE IN A LASER BEAM PRINTER

Akira Morimoto, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 6, 1987, Ser. No. 11,566
Claims priority, application Japan, Feb. 6, 1986, 61-25098
Jul. 26, 1986, 61-176269
Int. Cl.⁴ G02B 9
Cl. 350—6.5 25 Claims

An optical system comprising
semiconductor laser;
ollimating lens that produces a beam of generally parallel rays from laser light emitted from said semiconductor

a cylindrical lens that has a curvature in a first cros and which once performs a focusing of the lase form an image in said first cross section,

a deflector that is disposed behind a point at wh image has been formed in the first cross section as of focusing by said cylindrical lens; and

an anamorphic scanning lens system by which the deflected beam from said deflector is concentrated on a scanning plane, said anamorphic optical system satisfying the lowing condition

deflector and a point at which said image has been fo said first cross section as a result of focusing with said c cal lens, and f is the focal length of the scanning lens system in a second cross section, substantially perpendicular to said first cross section

4,756,584

SCANNING OPTICAL SYSTEM WITH IRREGULAR DEFLECTING SURFACE CORRECTION

kanashi, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Filed Jan. 27, 1987, Ser. No. 7,402
Claims priority, application Japan, Jan. 24, 1986, 61-013320
Int. Cl.⁴ G02B *26/10, 13/08, 3/06*
U.S. Cl. 350—6.8 6 Claims

1. A scanning optical system capable of correcting deflecting surface irregularity, comprising

a light source for emitting a light beam

a first focusing optical system for focusing the light beam as a linear image.

a light deflector having a deflecting surface in the vicinity of

a second focusing optical system for fo sam deflected by said light deflector be

scanned, said second focusing optical system single anamorphic lens, a single spherical positive refracting power, and a single lens having a toric surface, successively arranged in order from said light

4,756,585

OPTICAL BEAM SCANNING SYSTEM

inagawa, and Nobuo Sakuma, Tokyo, both of Japan, to Ricoh Company, Ltd., Tokyo, Japan
Filed Jul. 21, 1986, Ser. No. 888,466
priority, application Japan, Jul. 31, 1985, 60-169358
Int. Cl.⁴ G02B *26/10, 3/02*

1. An optical beam scar
a laser beam source,
optical means for shaping a l laser beam source
a light deflector rotatable about
a surface to be scanned; and
an image-forming lens disposed in front of said light deflector with respect to a path of travel of said laser beam fo applying the laser beam shaped by said optical said light deflector while orienting the laser bea said axis thereof at finite angle to a plane normal to sai axis of the light deflector, for thereby allowing said light deflector to reflect the applied laser beam successively to rewith, said image ending perpend and being arrang nage-forming len optical axis of

ROTATABLE BODY

Bontko Witteveen, Venlo, Netherlands, as land B.V., Venlo, Netherlands
Filed Apr. 9, 1986, Ser. No.

rohisa Sano, Kokubunji; Katsuyuki Iwote, Minoru Maeda, Nishitama, all of Japan, assignor td., Tokyo, Japan

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POLARIZATION-INDEPENDENT OPTOELECTRONIC DIRECTIONAL COUPLER

Per O. Granestrand, Stockholm, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Jun. 10, 1986, Ser. No. 872,657

[illegible] plication Sweden, Aug. 15, 1985, 8503827

Int. Cl.⁴ G02B 6/10; G02F 1/00

Cl. 350—96.14 6 Claims

1. Polarization independent optoelectronic directional coupler including a mono-crystalline wafer of optoelectronic material having at its upper surface light waveguides and electrodes along an interaction distance of the waveguides, the crystal material of the wafer having an otpical axis, the crystallographic c axis, for which the refractive index has a given value so that a light ray incident in the direction of the axis is affected by this refractive index independent of the polarization direction of the light ray, the refractive index of the crystal in remaining directions being determined by a refractive index ellipsoid, the axis of rotation of which is the optical axis, the crystal having an axis (the crystallographic a-axis) at right angles to the optical axis and which is defined by the crystal lattice, characterized in that the electrodes include main electrodes (17) substantially covering the waveguide (13) along the interaction length (L_1) and secondary electrodes (18) spaced from the main electrodes (17), the latter being between the secondary electrodes so that with the aid of the electrodes there may be generated electrical fields (E_h, E_1, E_2) the resultant of which in each waveguide is at right angles to the upper surface (12), in that the optical axis (c, Z) is in a plane (x_2–[illegible] which includes the longitudinal direction of the waveguide (13) and is at right angles to the upper surface (12), and in that the optical axis (c, Z) is directed between two extreme positions, of which one is parallel to the upper surface (12) and the other forms an angle (β) with the upper surface which is less than 15 degrees, said crystallographic a-axis being able to assume six alternative positions at 60 degrees spacing, of which one is parallel with the plane of the upper surface (12).

4,756,589

OPTICAL COUPLER UTILIZING LOW OR ZERO BIREFRINGENCE OPTICAL FIBERS AND A METHOD OF MAKING SAME

Terry Bricheno, Great Sampford, and Vernon Baker, Harlow, both of United Kingdom, assignors to STC plc, London, England

Filed Jan. 15, 1986, Ser. No. 819,125

[illegible] Feb. 12, 1985, [illegible]

Int. Cl.⁴ G02B 5/26; C03B 23/20

Cl. 350—96.15 8 Claims

A polarization beam splitter/combiner comprising a pair of low or zero birefringence single mode optical fibres, regions of which have been prepared, twisted together, and stretched and fused together by a heating and differential pulling technique, the twisted together regions being stretched to such an extent that orthogonal polarisations of a beam input to one end of one of the optical fibres are split between the optical fibres.

3. A method of manufacturing a polarisation beam splitter/[illegible] r zero birefringence single mode [illegible] steps of preparing a respective [illegible] heating and differential pulling technique which induces for[illegible] birefringence such that orthogonal polarisations of a bea[illegible]

[illegible] optical fibres, and wherein the achieved form birefringence [illegible] controlled by controlling the temperature employed for heating and differential pulling technique.

4,756,590

OPTICAL COMPONENT PACKAGE

Stephen R. Forrest, Chatham, and Yusuke Ota, Mountain Lakes, both of N.J., assignors to American Telephone and Telegraph Company, AT&T Bell Laboratories, Murray Hill, N.J.

Filed Sep. 3, 1985, Ser. No. 771,784

U.S. [illegible]

[illegible] al fiber having a longitudinal axis a[illegible] a block, which block and fiber have [illegible]
  planar beveled edges,
a reflective layer formed [illegible]
  and fiber, and
at least one electro-optical component aligned [illegible]
  edges so that light is reflected between the comp[illegible]
  fiber, said component mounted over a surface [illegible]
  essentially parallel to the longitudinal axis of the fiber.

4,756,591

DEVICE FOR RELEASABLE COUPLING OF AN OPTICAL FIBER TO AN OPTOELECTRONIC COMPONENT

Karl Fischer, Munich, and Werner Spaeth, Holzkirchen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Feb. 6, 1985, Ser. No. 698,712

Claims priority, application Fed. Rep. of Germany [illegible] 1984, 3404613

Int. Cl.⁴ G02B [illegible]

U.S. Cl. 350—96.20 15 Claims

1. A device for the detach[illegible] an optoelectronic componen[illegible] gral support having means for retaining the optoelectron[illegible] component and having a V-shaped groove therein for receiving the end of the optical fiber, said retaining means and said groove having a predetermined orientation such that the [illegible] face of the optical fiber is aligned wit[illegible] component for optimum transmissi[illegible] applying a spring force to hold the opt[illegible]

Yasumasa Koakutsu, Fujisawa; Seiichi Onoda, Yokohama; Masao Yano, Yokohama; Junichi Shimizu, Tokyo; Sadanori Ohyama, Chigasaki; Noriaki Sekine, Atsugi; Norifumi Ish[illegible] Joo; Jiro Nakano; Hideji Matsuura, both of Atsugi, a[illegible] Yasusi Anzo, Mito, all of Japan, assignors to Hitachi, [illegible] and Mitsumi Electric Co., Ltd., both of Tokyo, Japan

Filed Dec. 5, 1986, Se[illegible]

Claims priority, application Ja[illegible] 190902[U]; Dec. 11, 1985, 60-190[illegible] 190904[U]; Dec. 1[illegible]

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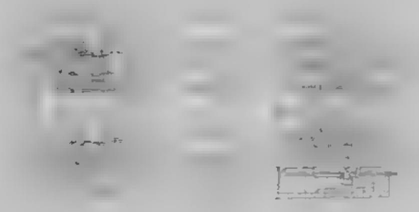
PTIC FIBER INTERCONNECTION SYS

rph W. Tiberio, Ash La., Sherborn, Mass. 01770
Filed May 13, 1982, Ser. No. 377,833



interconnection system comprising

housing defining openings for receiving the ends of optic fibers,

plurality of composite fiber elements extending through said openings and having mounting portions within said housing, each of said fiber element mounting portions mprising an optic fiber portion, a flexible jacket cover- fiber portion, and a rigid protective shield between said optic fiber portion and said

y of holder members each retaining a different one l fiber element mounting portions and shaped and arranged to retain said mounting element portion by clamping said jacket thereof to said shield means, each of said holder members comprising an annular portion encir ne of said fiber element portions and a transversely ng lateral portion and ends of said optic fiber por- xtending beyond said holder members and adapted nnection to other optic fiber portions; and

ort means secured within said housing and retain ng said fiber element portions in a parallel array, said base support means comprising a stamping defining a plurality of slots each receiving and engaging said lateral portion on a different one of said holder members so as to prevent axial movement thereof, said stamping further defining a plurality of pairs of spaced apart ears each pair bent into engagement with a different one of said holder members so as to prevent transverse movement thereof, and wherein said pairs of ears are spaced apart in directions both axial and transverse to said parallel fiber eleme portions.

FIBER CONNECTOR FOR HIGH PRESSURE ENVIRONMENTS

to W. Braun, and Richard M. Romley, both of San Dieg alif., assignors to Honeywell Inc., Minneapolis, Minn
Filed Apr. 21, 1986, Ser. No. 854,224
Int. Cl.⁴ G02B 6/36

tor for connecting first and sec

ector comprising

housing impermeable t interior,

st aperture in said housing, said first aperture to allow said first optical fiber to extend into sa of said housing,

cond aperture in said housing, said second aperture being sized to allow said second optical fiber to extend into said nterior of said housing,

ns for sealing said first aperture against water when irst optical fiber is extended into said interior of said housing through said first aperture;

ond means for sealing said second aperture against water when said second optical fiber is extended into said interior of said housing through said second aperture, wherein said second sealing means is biased closed when said second optical fiber is not inserted into said second sealing means, and wherein said second sealing means is ible and will conform to the surface of said seco fiber as said second optical fiber is inserted through said second aperture;

means for holding said end of said first optical fiber and said end of said second optical fiber so that said optical axes are in substantial alignment, said holding means being disposed in said interior of said housing, and

means for substantially compensating said inter re on the exterior of sa aid seals

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capable of forming a three-dimensional in
r located at a viewing side distant from sai
ve field lens located directly in front of each source
ducing respective optical rays resulting from each
l light-emitting images,
pective sets of first folding mirrors assigned to each of said field lenses for reflecting said optical rays resulting from each of said light-emitting images generally toward said viewing side;
spective objectives receiving optical rays from each of said sets of first folding mirrors for forming overlapping
termediate images in an image plane located be-
aid sources and said viewing side, each of said
ves having an edge forming a diaphragm and repre-
ing an edge of the respective i

nt located at said image
d positioned between said sources and said image
project said intermediate images to the infinite
rm said exit pupils at said exit side, said positive
ystem having a focal length and said focal point
that said exit pupils each have a diameter
qual to an interaxial spacing of said exit
ding substantially to the centric spacing
er, and
etween said image plane and said positive optical system for reflecting light from said image plane to said positive optical system

4,756,602

RROWBAND OPTICAL FILTER WITH PARTITIONED CAVITY

liam H. Southwell, Thousand Oaks, and William J. Gunning, Newbury Park, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jun. 5, 1987, Ser. No. 58,495

Int. Cl.⁴ G02B 5/28

f designing a thin film optical bandpass filter transmitting light in a narrow band of wavelengths cen-
ed about a bandpass wavelength, comprising the steps of:
fining a first quarter-wave stack, including a first plurality
ers each having an optical thickness equal to one
the bandpass wavelength,
a second quarter-wave stack, including a second
ers each having an optical thickness equal
he bandpass wavelength,

he second quarter-wave stack;
lacing the cavity layer with a partitioned cavity includ-
ing at least one layer of a first optical material with a relatively high index of refraction and at least one layer of a second optical material with a relatively low index of refraction, the partitioned cavity layers having a total optical thickness equivalent to the optical thickness of the cavity layer; and
adjusting the physical thickness of each partitioned cavity layer to center the transmission peak of the filter on the

4,756,603

GLARE-PROOF TRANSPARENT COVER PLATE

uichi Ohtani, Nagaoka, Japan, assignor to Nippon Ltd., Nagaoka, Japan

Filed Aug. 22, 1986, Ser. No. 899,168

laims priority, application Japan, Jan. 31, 1986, 61-204
28, 1986, 61-44688

plate comprising a back
rmed in a parallel arrange-
ges each having a horizontal facet
extending substantially perpendicularly to the flat pla
inclined facet inclined to the flat plane at an inclinati
ing an inequality $\alpha \geqq (\beta+\omega)/2$, where α is the inclinati
inclined facet to the flat plane, β is the angle of ref
the incident rays of light within the transparent c
d ω is the critical angle of the material forming the transpa
cover plate

4,756,604

LIQUID CRYSTAL DEVICE USING A FRESNEL OLLIMATING LENS FOR IMPROVING UNIFORMITY OF DISPLAY CONTRAST RATIO

Hideaki Nakatsuka, and Mikio Kanazaki, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 2, 1987, Ser. No. 69,044

Claims priority, application Japan, Jul. 4, 1987, 61-156001

Int. Cl.⁴ G02F *1/13*, G02B *17/00, 3/06*

U.S. Cl. 350—331 R 4 Claims

1. A liquid crystal display device for use in a projector of the type wherein light from a light source is gathered by a condenser lens, is modulated by the liquid crystal display devi placed on a stage and focused on a display screen by a projec tion lens, said liquid crystal display device comprising a liquid crystal display cell having a thin film of liquid crystal material sandwiched between patterned transparent electrodes formed

4,756,605

LIQUID CRYSTAL SPECTACLES

Takao Okada; Takeaki Nakamura; Kimihiko Nishioka Hiroyuki Yamamoto; Toshihito Kouchi, and Hideo Tomabechi, all of Tokyo, Japan, assignors to Olympu Ltd., Tokyo, Japan

Filed Jan. 21, 1986, Ser. No. 820,6

aims priority, application Japan, Fel

an that in the absence c

Jack L. Jewell, Bridgewa
ham, both of N.J., assig
graph Company

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said optical a

beam of a predetermined wave

said forward light beam with a

d from said first optical

tting said forward light

n said optical isolator device, said second optical

ing as an input port for a reverse light beam;

rotating means for rotating, by a first rotation

rotating direction, the plane of polarization of a

g therethrough in any one of the forward

lirections, said first beam rotating means

said optical axis adjacent said first opti-

the plane of polarization of said

said first optical port and to emit

id forward light beam therethrough as a first rotated ight beam with a first rotated plane of polarization;

t polarization selecting means having a first transmission lirection of the plane of polarization for selectively allowng only one plane-polarized light beam to pass therethrough, said first polarization selecting means being disosed adjacent said first beam rotating means so that said irst transmission direction coincides with said first rotated lane of polarization to thereby transmit said first rotated ight beam therethrough.

ond beam rotating means for rotating, by a second rotaion angle in the same rotating direction, the plane of olarization of a light beam passing therethrough in any ne of the forward and the reverse directions, said second eam rotating means being disposed on said optical axis etween said first polarization selecting means and said econd optical port to thereby rotate the first rotated lane of polarization of said first rotated light beam and to mit said forward light beam therethrough as a second otated light beam having a second rotated plane of polarzation,

e of said first and second beam rotating means being prepared to have a first rotation angle of 45° for a first ight component having a wavelength (λ_1) shorter than aid predetermined wavelength (λ_0), while the other being repared to have a second rotation angle of 45° for a second light component having a wavelength (λ_2) longer han said predetermined wavelength (λ_0); and

ond polarization selecting means having a second transmission direction of the plane of polarization for selecively allowing only one plane-polarized light beam to pass therethrough, said second polarization selecting means being disposed at said second optical port so that said second transmission direction is oriented at an angle offset from said first transmission direction by 45° in the otating direction to thereby transmit said second rotated light beam therethrough as said forward light beam, said reverse light beam passing through said second polarization selecting means with a plane of polarization equal to said second transmission direction but being stopped b said first polarization selecting means after rotated by sai second beam rotating means

4,756,608

HIGH ZOOM-RATIO FINITE-DISTANCE ZOOM LENS

Takayuki Itoh, Tokyo, Japan, assignor to Asahi Kogaku Kogy Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 26, 1986, Ser. No. 911,939

Claims priority, application Japan, Sep. 26, 1985, 60-214054

Int. Cl.⁴ G02B *15/14, 9/64*

Cl. 350—427 12 Claims

1. A high zoom-ratio finite-distance zoom lens having a fixed object-to-image distance which comprises, in order from one side thereof, a first lens unit having a positive focal length, a second lens unit having a negative focal length, a third lens unit having a positive focal length, and a fourth lens unit having a positive focal length, said lens being capable of zooming from a first degree of magnification to a second degree of magnifica-

placing the first, third and fourth lens units

where

m_{1}: a magnification of

tion degree end,

m_{1S}: a magnification of the first lens unit at the first magnification degree end,

m_{2S}: a magnification of the second lens unit at the first magnification degree end,

m_{4S}: a magnification of the fourth lens unit at the first m cation degree end,

m_{2L}: a magnification of the second lens unit at th magnification degree end,

m_{4L}: a magnification of the fourth lens un magnification degree end,

X_3: an amount of displacement of the third lens unit,

X_4. an amount of displacement of the fourth lens unit,

ENP_L: a position of an entrance pupil (distance from the first lens surface) at the high magnification end; and

f_L. a focal length of the overall system at the second magnification degree

FOUR COMPONENT COMPACT ZOOM LENS

Lee R. Estelle, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 13, 1987, Ser. No. 72,945

Int. Cl.⁴ G02B *15/14, 9/34*

axially to vary the focal length through a range of at least 2.5:1 including a front negative component, a positive component, a positive cemented doublet component and a rear negative component comprising three elements, and a diaphragm mounted with the first-mentioned positive component, the total length from the vertex of the front surface of th

---

focal length setting and less than F_L the long fo setting, wherein F_s is the short focal length and F_L focal length

4,756,610

ADJUSTABLE CRANK AND LINKAGE ASSEMBLY FO ZOOM LENS OPTICAL SYSTEM

James A. Clark, Honeoye Falls, and Michael H. Dobner, Webster, both of N.Y., assignors to Cambridge Instruments Inc., Buffalo, N.Y.

iled Apr. 8, 1987, Ser. No. 35,8

1. Mechanism for adjusting the conjugate pair of zoom lens assemblies of a zoom lens system an optical instrument, comprising:

first and second zoom lens assemblies,

crank means coupled to a rotatable shaft, said crank means including first and second legs coupled together by a flexible member,

first linkage pivotally connected between said first zoom lens assembly and said first crank means leg

a second linkage pivotally connected between said second zoom lens assembly and said second crank means leg, and

means adjustably fixed to said rotatable shaft and coupled to said first and second legs whereby moving said adjustable means with respect to said rotatable shaft flexes the flexible member and changes the position of said legs with respect to each other thereby altering the relationship between said first and second zoom lens assemblie thereby adjusting the conjugate length of said lens assemblies

4,756,611

MULTIPLE-PURPOSE MICROSCOPE

Yasuo Inoue, and Itaru Endo, all of Hachioji, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

part of Ser. No. 646,514, Aug. 31, 1984, abandoned. This application May 5, 1986, Ser. No. 859,964

Int. Cl.⁴ G02B *21/12, 21/14*

U.S. Cl. 350—509 3 Claims

1. A multi-purpose microscope, comprising

a microscope body,

an illuminating unit mounted to said microscope emitting an illuminating light beam,

a condensor lens unit mounted to said microscope body and including a selectable positioning unit for selectively positioning one of a cavity hole, a ring slit and a polarizing side unit for a differential interference microscopy into path of the light beam from said illuminating unit,

a stage fixedly mounted to said microscope body

a revolver mounted to said microscope body for h plurality of objectives and including an analyzing-sid for differential interference microscopy mounted movement through a guide into and out of an optical pa of said microscope body,

focusing means mounted

fluorescent light source mounted

a point spaced from said optical path

g a fluorescent light be

Roger L. Hyman,

1. An eyeglass assembly compris

a separate and distinct first lens

temple piece pivotally attached

wardly from an edge portion of said

curved portion defining a nose bridge p

a separate and distinct second lens holding

temple piece pivotally attached to and

wardly from an edge portion of said se

said first and second frames releasably connected

other at a connection point in the nose piece zone

of said frames having a pin receiving hole dispos

the nose piece zone of said frame and the oth

frames having a pin projecting from the nose piec

said other frame and said frames having abutt

surfaces so that upon connection a hid

formed between said frame pieces and

connection will be visible so as to give

ass frame and

rates with a

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4,756,613

YE FUNDUS CAMERA HAVING VIEWING TARGETS

shihiro Okashita, Tokyo, Japan, assignor to Tokyo Kogaku Kikai Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 016,502, Feb. 18, 1987, abandoned, which is a continuation of Ser. No. 648,650, Sep. 7, 1984, abandoned. This application Oct. 28, 1987, Ser. No. 117,378

laims priority, application Japan, Sep. 14, 1983, 58-170388

Int. Cl.⁴ A61B 3/14; G03B 29/00

i comprising housing means, ob said housing means and adapted atient's eye, an illumination system eans for projecting beams of illumi- bjective lens means to said patient's cal system provid lus of the patien ving target proj ns for projecting an image of said l objective lens means to said fundus to determine the direction of the e, means for displacing said ection with respect to the ive ones of the patient's eyes,

the said

irgets being energized when a left eye of the patient iphed and a second one of said viewing targets being gized when a right eye of the patient is photographed, said irgets being selectively automatically energized in response to id transverse displacement of the housing means, and light ssing means for passing light beams from one of said viewing

4,756,614

FILM PROJECTOR TOY

uji Kato; Kazuhiko Mitsumoto; Yasuji Shindo; Kozuka, and Hiroshi Sano, all of Tokyo, Japan, assignors t Tomy Kogyo Co., Inc., Tokyo, Japan

Filed Apr. 14, 1987, Ser. No. 38,306

Claims priority, application Japan, 1991[U]; Jul. 17, 1986, 61-109546[U]

Int. Cl.⁴ G03B 23/10

projector for projecting a com e, such as a wall, comprising

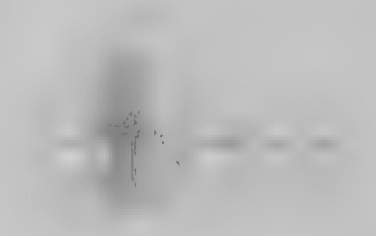
r associated with the h lm cassette mountable within the ho

y rotatable within the housing and havi penings formed radially therein, each of enable with the light

ing a first portion being aligned with of openings

(iii) a disc ope ment with the tive to the frame, and

(iv) a second film operatively connected to the disc for movement therewith having a plurality of second ind



nd portion of the complete picture in aligned with a corresponding one of the openings in the frame and being superimpo to a corresponding one of the plurality of

ns mounted on the housing for moving the dis- ling the second film up and down relative to the luding the first film thereby projecting the com mage through ith the light sour d indicia moving relat

4,756,615

PORTABLE FOLDING MICROFORM READER

Donald A. Hildebrand, Oriskany, N.Y., assignor to The United States of America as represented by the Secretary Force, Washington, D.C.

Filed Nov. 5, 1986, Ser. No. 927,019

croform holder attached to a r fame, said microform holder fo

assembly movably mounted to said rea it to said microform holder wherein

d view screen for focusing a ligl

comprising a folding lens diaphragm for holding a focusing lens stationary at a desired distance from said view screen during usage and for positioning said focusing lens closely adjacent to said screen during storage; and

f) a coherent fiber optic cable mounted at a first end a cent to said focusing lens assembly and mounted a second end adjacent to said pickup lens for movem therewith and for transmitting a light image from ssembly to said focusing lens assembly

4,756,616

IMAGE PROJECTION SYSTEM

Byong K. Min, 948 Clinton Rd., Los Altos, Calif. 94022, and Charles H. Wilson, 417 Perrymont Ave., San Jose, Calif 95125

Filed Aug. 10, 1987, Ser. No. 83,147

Int. Cl.⁴ G03B 23/02

nage projection system having a built-in ging unframed transparencies, comprising ame having an access port,

a stage mounted horizontally to said frame, said having a first end and a second end opposite to each ot said access port being near the first end of said stage, stage having between the first end and the second end a transparent viewing area in which a transparency to be viewed is positioned, said viewing area having a first end r the first end of the stage and a second end near t nd end of said stage,

a source of illumination for illuminating the image transparency positioned in the viewing area,

(4) a projection lens assembly for focusing the transparency positioned in the viewing area o n surface,

delivery means mounted to said frame for transparency and slidingly moving the transpar e surface of said stage;

magazine having a front end and a bottom bottom floor having an opening near the front a push-up plate positioned inside said magazine g a front end substantially aligned with the f id magazine, said push-up plate being adapted k of unframed transparencies thereon inside said maga- ine, said transparencies having a front end substantially ligned with the front end of said push-up plate;

8) guiding supports mounted to said frame near the access ort for allowing insertion of said magazine at the front d so that said magazine is disposed near said stage, the front end of the inserted magazine being adjacent to the first end of said stage and at a level below that of said

push-up means mounted to the frame below and near the me end of the inserted magazine for urging the front f the push-up plate upward through the opening in e bottom floor of the magazine,

feed means mounted to the frame above and near the front end of the inserted magazine for feeding the upper- most transparency from an up

stage where a for a ive command in a pre drive means responsive ving said feed means.

FIELD

Gary L. Cain, Springfield, and Sidney B. Goren, Ohio, assignors to Spectra-Physics, Inc., San Jose,

Division of Ser. No. 788,764, Oct. 18, 1985, Pat. No This application Jan. 27, 1987, Ser. No 6,8

The portion of the term of this patent subsequent 2004, has been disclaimed

Cl.⁴ G01B 11/26; G01C

ence of the alignment field proportional to the magn provement therein compri

RE Robert J. S

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ing a liquid [illegible] le volume, said tubular mem-
ber having a [illegible] sposed wall element includ-
ing a flat surf [illegible]

[illegible] jecting a light beam through said

FLECTANCE MEASURING APPARATUS FOR MAKING CONTACTLESS MEASUREMENTS

lermann Gerlinger, Aalen-Ebnat, and Gerhard Hohberg, Oberkochen, both of Fed. Rep. of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim, Fed. Rep. of Germany

Filed Jul. 23, 1986, Ser. No. 889,330

Claims priority, application Fed. Rep. of Germany, Ju [illegible] 85, 352655 [illegible]

Int. Cl.⁴ [illegible]

a stationary light source for supplying light,
ecting means for directing said light onto said sur- [illegible] measurement [illegible] intensity of [illegible] distance for

[illegible] nent area, and
[illegible] ting means including a condenser defining focus and said light source being mounted at said focus, and, said condenser directing said light onto said surface in a substantially parallel beam to also define a core area wherein said intensity is virtually independent of said distance and to define said measurement area to be less than said core area when said surface is at its farthest [illegible] nd range from said measuring device.

4,756,620

ATION METHOD FOR A FIBER-OPTIC ROTATION SENSOR

rhard Kiesel, Edingen, Fed. Rep. of Germany, assignor to Teldix GmbH, Heidelberg, Fed. Rep. of Germany

Filed Jul. 26, 1985, Ser. No. 759,166

laims priority, application Fed. Rep. of Germa [illegible] 84, 3428147

circuit formed of a plurality of windings of a light conductive fiber and wherein a phase modulator modulates the rotating light and the rate of rotation is determined by means of an evaluation unit which performs a phase sensitive rectification of the signal formed by the rotation sensor, characterized in [illegible] ak value signal proportional to a proportional- [illegible] ained in the signal formed by the rotation [illegible] l by means of a measuring device performing [illegible] lue measurement on the signal formed by the [illegible] d is subsequently used to compensate scale

4,756,621

APPARATUS FOR MEASURING A LENGTH OF DISPLACEMENT

Makoto Sagara, Numazu, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 22, 1986, Ser. No. 909,889

Claims priority, application Japan, Oct. 16, 1985, 60-230862; Oct. 16, 1985, 60-230863

Int. Cl.⁴ G01B

U.S. Cl. 356—383 8 Claims

one of said points,
a photoelectric converting element array disposed on surfa [illegible]
light [illegible]
produ [illegible]
said one poi [illegible]
means for rela [illegible]

obtain a binary pattern information,
first pattern memory means for storing said bin [illegible] information,
second pattern memory means for storing, as a [illegible] pattern, a binary pattern information of a pattern [illegible] ion detected by said photoelectric converting element [illegible] aid pattern information stored in said first [illegible] y means, and

arithmetic processing means including means for calculating a deviation of said pattern information stored in said first pattern memory means from said reference pattern store in said second pattern memory means, deviation mem [illegible] means accumulating and storing said deviation, and mea [illegible] said reference pattern stored in said second [illegible] y means with said pattern information [illegible] memory pattern means.

4,756,622

COMPACT APPARATUS FOR MEASURING ABSORPTION BY A GAS

ob Y. Wong, Santa Barbara, Calif., assignor to Hibshman Corporation, San [illegible]

Filed M [illegible]

In [illegible]

closed path and to repetitively pass through an [illegible] medium maintained on the closed path, for introduci [illegible] tion to the closed path, and for removing radiation [illegible] sed path, said apparatus comprising in combinatio [illegible]
polarizing beamsplitter in which radiation linear [illegible] zed perpendicular to the plane of incidence and in [illegible] pon said polarizing beamsplitter at the polarizing angle on a first path is reflected from said polarizing beamsplitter on a second path, and in which radiation linearly polarized parallel to the plane of incidence and [illegible] upon said polarizing beamsplitter at the polariz [illegible] n the first path is transmitted through said polarizing [illegible] splitter and proceeds on a third path;
[illegible] means located and oriented to reflect radiation linearly polarized perpendicular to the plane of incidence [illegible] itively on a closed path that includes reflection from [illegible] polarizing beamsplitter and that coincides at least in

medium on the closed [illegible]
source of radiation line [illegible] of incidence, positioned and o [illegible] nto said polarizing beamsp [illegible] ion that the radiation linearl [illegible] plane of incidence is transmitt [illegible] beamsplitter and emerges along [illegible]
pockels cell means located on sa [illegible] tively operable alternatively to rotate the di [illegible] polarization of the radiation on said closed p [illegible] degrees or to leave the direction of polariza [illegible] radiation passing through it unchanged [illegible]
timing means electrically connected to sa [illegible] applying voltage pulses to it for abruptly al [illegible] adiation passi [illegible]

plane of incidence is making it [illegible] path, said pockels cell changes [illegible] ization by 90 degrees so as to be perpen [illegible] of incidence, and after that said pock [illegible] direction of polarization unchanged so t [illegible] epetitively on the closed [illegible] rcuits have been comple [illegible]

4,756,623

COLLAPSIBLE MIX [illegible]

Robert J. Bishop, 1083 Bloomfield [illegible]

Continuation-in-part of Ser. N [illegible] andoned. This application [illegible]

Int. Cl [illegible]

small and large ends [illegible] at the small end, and [illegible] amferentially spaced and inwardl [illegible] g stiffening and mixing ribs ter [illegible] s at the large ends of said frust [illegible] and a ring member of diamet [illegible] ters of the large ends of said [illegible] able mounting theret [illegible] conical mem [illegible] when assem [illegible]

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CIRCULATION MIXER FOR BULK MATERIAL

ans Hoppe, Vogt, and Reinhard Koppers, Bergatreute, both of Fed. Rep. of Germany, assignors to Waeschle Maschinenfabrik GmbH, Ravensburg, Fed. Rep. of Germany

Filed Jun. 17, 1987, Ser. No. 63,205

Claims priority, application Fed. Rep. of Germany, Jun. 20, 86, 3620749

S. Cl. 366—101 11 Claims

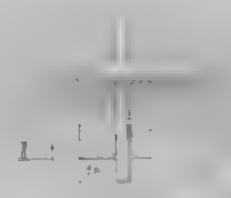
comprising
nd having a lower
ans accommodat n direction
d axis for guiding said lower
o said upper part, and
eans attached to said lower part of sa
icluding inlet means for allowing introc
terial from said container, outlet means communi
neans, port means cooperating with
llowing introduction of air, and a
said container

4,756,625

MIXING APPARATUS FOR FLUID MATERIALS

arl L. Schultz, Plymouth, Mich., assignor to Sealant Equipment & Engineering, Inc., Oak Park, Mich.

Filed Jun. 30, 1986, Ser. No. 880,04



ixing device for mixing fluids comprising a hous
ylindrical mixing chamber therein defined by a
lrical side wall and a pair of spaced apart
s, said end walls being substantially flat and
diameter of said chamber being sub
ween said end wall,
let passages in said

rotor of a diameter slightly less than that of said chamber mounted for coaxial rotation within said chamber, the thickness of said rotor being substantially less than the distance between said end walls and said rotor being located midway between said end walls, a plurality of balls fixedly mounted in said rotor, said balls being of a uniform diameter slightly less than the distance between said end walls and projecting symmetrically from the opposite side surfaces of said rotor, said balls being located on said rotor in a plurality of groups, each group consisting of at least two balls having their centers lying on a common radius of said rotor, the radii along which said groups of balls are located being uniformly angularly spaced about the axis of said rotor, the centers of the balls of a first group being radially offset from the center of the balls of an adjacent second group by a distance approximately equal to one half said uniform diameter, such that upon rotation of said rotor the portions of the balls projecting from said rotor sweep
tire radial extent of said chamber between
t openings and the periphery of said rotor

4,756,626

FLUENT AND NONFLUENT MATERIAL MIXER

Benjamin R. Neier, Dodge City, Kans., assignor to Roto-M Inc., Dodge City, Kans.

Filed Sep. 8, 1986, Ser. No. 904,658

t forward and rea
posite sidewalls,
ing a curved wall port
longated rotor ba
supporting said rotor in said main chamber for rotation in a direction for movement of said rotor bars across said curved wall portion,
aid rotor having a diameter such that said rotor bars travel in an arc substantially conforming to and adjacent to s curved wall portion,
drive means for rotating said ro
means for supporting said rotor bars for movement radi of said rotor and means for urging said rotor bars radia outwardly of said rotor,
ne elongated wiper rigidly conn
ping contact with said curved
se to movement of said rotor bar th
urging means biasing said wiper towards said curved w portion, and
means for preventing any rotational movement of said rot bar and thereby maintaining a substantially consistent and uniform angle between said wiper and said curved wall

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OPTICAL TEMPERATURE SENSOR USING PHOTOELASTIC WAVEGUIDES

Arthur P. Nelson, Stow, Mass., assignor to Sperry Corpor Blue Bell, Pa.

Filed Aug. 17, 1984, Ser. No. 6

comprising a source of light energy, a light detector, a receiver coupled to said detector, and temperature sensing means interposed between said source and said detector, wherein said temperature sensing means comprises:

an optically transparent photoelastic substrate having planar surface and an input region whereat light energy i coupled for guidance therein, an index of refraction responsive to stress applied thereto, a first thermal coefficient of expansion, and an output region for extracting at least a portion of said light energy,

a film having a second thermal coefficient of expansion deposited upon said planar surface of said substrate in a predetermined pattern extending from said input region to said output region,

said film defining first and second photoelastic waveguides proximate thereto and residing within said substrate, corresponding to regions of stress induced change in index refraction responsive to said temperature changes, for coupling said portion of said light energy from said input gion to said output region,

ences of said first and second thermal coefficients c xpansion applying a stress to said substrate th aid index of refraction corresponding to said wave said variation in index of refraction varying said portion light inversely according to said temperature changes,

aid film having longitudinal portions spaced a predetermined distance therebetween for coupling said first and second waveguides, said coupling responsive to temperature changes of said film and said substrate,

means for coupling single-mode light rays from said sourc of light energy to one of said first and second waveguid and

means for coupling said first and second waveguides, respectively, to said light detector,

aid light detector further comprising first and second detector means coupled to said first and se respectively.

4,756,628

RECLOSABLE FLEXIBLE CONTAINER HAVING A DOWNWARDLY DEPENDING CUFF

Mark Branson, Shelbyville, Ind., assignor to KCL Corporation Shelbyville, Ind.

Continuation-in-part of Ser. No. 796,632, Nov. 8, 1985, abandoned. This application Dec. 10, 1986, Ser. No. 940,0

Int. Cl.⁴ B65D 33/24

U.S. Cl. 383—63 14 Claims

1. A reclosable flexible container comprising
a pouch having front and back walls, and a pouch opening at the upper edge thereof, said po

t first continuous faste

erlocking with said fro

Paul A. Tilman, New City; Joseph Bor N.Y., and Bruce J. Mallner, Edgewate Minigrip, Inc., Orangeburg, N.Y.

Filed Apr. 23, 1987, Ser. No

a bag having confronting flat side walls
having an opening between said walls at
with said walls attached by a side seam a
bag,
closable rib and groove fastener strips at the top
between said side walls formed of a thermopla
rial, each strip having a
facing engageable relat
and having a base secured to the bag
a bonding layer between each of the strips
coextensive with the strips and located
and said bag wall and having a predetermined later width, said width being substantially wider than the profile of the strips,
and a flattened compressed
formed of a m
thereby prevent

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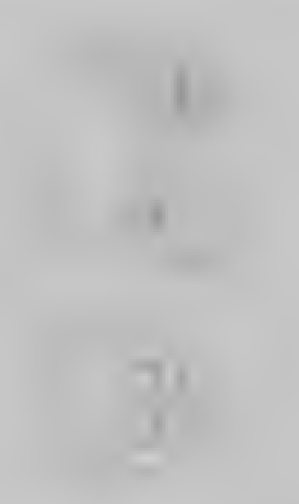
ing a width dictated by the width of l of spread which occurs in the plastic of the pro when compressed to form said spot seal, the width of onding layer being greater in both directions laterally of the profiles than said spot seal, the edges of the spot seal being joined to the bag wall by said bonding layer

4,756,630
OOLHOLDER GUIDE



nch presses and the like in- guide comprising

ethrough adapted ler for reciprocal motion therein paced, elongate keyways within the

wear and centering strip installed within each keyway the full length thereof, said strip protruding radially to the bore inwardly beyond the wall thereof, the strips being eceive the toolholder body between their ng surfaces in close clearing tolerances

4,756,631
DIAMOND BEARING FOR HIGH-SPEED DRAG BITS

Kenneth W. Jones, Kingwood, Tex., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Jul. 24, 1987, Ser. No. 77,266

Int. Cl.⁴ F16C *33/24*, **E21B** *10/22*

384—95 27 Claims

1. A diamond bearing for a rotary rock bit comprising

a main bit body forming a first pin end and a second cutting end, said bit body further forms a chamber therein open to said first pin end to direct a source of coolant through said bit body,

at least one support means for a rotary cutter adjacent said second cutting end of said bit, said support means forming a journal with bearing surfaces thereon,

a rotary cutter mounted on said journal, said rotary cutter forming bearing surfaces opposing respective bearing surfaces formed by said journal; and

aid bearing surfaces having a multiplicity of separated ts strategically positioned on and around es, each of said diamond segments surface substantially aligned with a

matrix material metallurgically bonded to said bear

surface, said source of coolant is directed through a passage formed between said bit body and said bearing surfaces to cool said diamond bearing segments during operation of said rotary rock bit

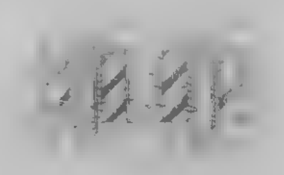
4,756,632
PLASTIC BEARING

James A. Belanger, Northville, Mich., assignor to Belanger Inc., Northville, Mich.

Continuation of Ser. No. 812,563, Dec. 23, 1985, abandoned, which is a continuation of Ser. No. 612,306, May 21, 1984, Pat. No. 4,586,831. This application Feb. 13, 1987, Ser. No. 18,092

Int. Cl.⁴ F16C *33/20, 25/02, 35/02*

4—297 8 Claims



nting surface, sai bores being spaced about the bearing bore and being located symmetrically relative to each other and to said bearing bore so that the bearing may be unfastened from the mounting surface, rotated, and remounted to change a portion of the bearing bore receiving primary wear from the shaft to another portion of the bearing bore; and

lurality of rigid sleeves in said fastener bores with each sleeve being received in one of the fastener bores to extend from said first side to said second side, said sleeves being slightly longer than the thickness of said block as measured between the first and second sides so that each fastener may be tightened against each sleeve to se fasten the bearing to a mounting surface withou

4,756,633
INKING RIBBON INCLUDING A SUBLIMABLE RELEASE LAYER FOR COLOR TRANSFER UNDER TH INFLUENCE OF HEAT

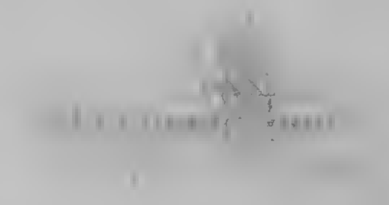
Friedrich-Wilhelm Drees, Duererstrasse 46, D1000 Berlin 45; Hartmut Grethen, Nusshaeherstrasse 47u, D1000 Berlin 27; Hagemeyer, Corneliusstrasse 33, D1000 Berlin 4 and Wolfgang Pekruhn, Binger Strasse 83, D1000 Berlin 3 all of Fed. Rep. of Germany

Filed Aug. 19, 1987, Ser. No. 87,161

Claims priority, application Fed. Rep. of Germany, Aug. 20, 1986, 3628194

Int. Cl.⁴ B41J 3/2

U.S. Cl. 400—120 8



1. In an inking ribbon for color transfer under the influence of heat, said ribbon comprising a carrier layer, a heat-soluble release layer on the carrier layer for adhering a color layer, the improvement comprising the release layer being mad imable material

4,756,634
FRICTION DEVICE FOR THE DRIVE OF A RIBBON OF A TYPEWRITER OR PRINTER

Bengt-Ake Henriksson, Svängsta, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

PCT No. PCT/SE86/00183, § 371 Date Jan. 24, 1987, § 102(e) Date Jan. 24, 1987, PCT Pub. No. WO86/06685, PCT Pub. Date Nov. 20, 1986

PCT Filed Apr. 22, 1986, Ser. No. 22,802

laims priority, application Sweden, May 9, 1985, 8502320

Int. Cl.⁴ B41J *35/28*

S. Cl. 400—207 4 Claim

1. A friction device for the advance of a ribbon of a print or typewriter comprising a drive roller having an outer surf and a counterpressure roller bearing resiliently aga outer surface of the drive roller to frictionally advan

OG CLUTCH BETWEEN A DRIVE ME RIBBON CARTRIDGE

Klaus-Dieter Frerichs, Schortens, Fed. Rep. of Germ signor to Olympia Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 731,712, May 7, 1985, abandoned. Th application Mar. 23, 1987, Ser. No. 29,08

Int. Cl.⁴ B4

og clutch comprising

a spindle,

hollow pin clutch component, said h g an opening clutch compor wall surrounding said opening;

said spindle having outwardly ext ment components which substant said wall when the spindle is inserted in t hollow pin clutch component,

the engagement of said spindle and said h component providing the sole driving mean ribbon drive;

said hollow pin clutch component being e

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PRINTER WITH AUTOMATIC PRINT-MODE SETTING DEVICE

Satoru Maruyama; Yasushi Kawakami, both of Nagoya; Fukue Obata, Yokkaichi, and Ryuhei Maso, Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 8, 1986, Ser. No. 916,555

Claims priority, application Japan, Oct. 14

for con

g the presence of said sheet
detector means generating a
l and a feeder-absence signal which
presence and absence of said sheet

-pre-
ne of

means being
automatically
blishing a
cha

4,756,637

FITTING, PARTICULARLY FURNITURE FITTING

Rudiger Walz, Nagold, Fed. Rep. of Germany, assignor to Hafele KG, Fed. Rep. of Germany

Filed Nov. 6, 1986, Ser. No. 928,325

Claims priority, application Fed. Rep. of Germany, 1985, 3539853

S. Cl. 403—23

of insertion and
ertable in the receiving opening,
of the locking device movable within a range of
projecting member defining a countersurface essen-
ing against the direction of insertion of the locking
to the receiving opening, a rotary member mounted in
rt device, the rotary member being spring-biased
against the direction of insertion of the projecting
ber rotatable from a first initial posi-
, the rotary member defining a heli-
essentially facing in the direction of
ing member, the rotary member having
ning a conically shaped surface extend-
mferential direction and being spaced
m an end of the helical end face, the
in the initial position of the rotary

and the helical end face are
he rotary member in such a
tary member from the initial
the helical end face enters the range of travel of the
g member and engages the c

the rotat
shape of
ag
l

longitudinal axis at the bottom of the cylinder
its radially outer region the helical end face

4,756,638

LOCK MOUNTING

cheville, France, assignor to

d Oct. 17, 1986, Ser. No. 920,73

Claims priority, application France, Oct. 30, 1985, 85 16098

Int. Cl.⁴ F16B 9/0

U.S. Cl. 403—261 5 Claims

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drical wall passing through the s

lugs fast with the said ring and lodged
ay portions,
her radial lugs carried by the extremity o
ylindrical wall, said further lugs being offset
relation to the first lugs,
a stop-forming axial wall for connecting at h

eral dogs at the extremity of the body at its extrem-
ity adjacent the wall, said peripheral dogs serving to lodge
each between a first and a second lug of the ring
course of a translation movement followed by
of the said body on the ring, at least one of the lugs effect-
ing pawl-engagement with at least one of the correspond-
ing dogs of the bolt body, and
g) a compressible gasket interposed between the extremit
of the body adjacent the wall and the said cylindrical wa

4,756,639

JOINTING STRUCTURE FOR FURNITURE AND DISPLAY STAND PIPES

Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Co., Ltd., Japan

Filed Oct. 30, 1986, Ser. No. 925,819

Claims priority, application Japan, Jun. 24, 1986, 61-96607

Int. Cl.⁴ F16B 7/02, 12/36

14 Claims

pipes, which open ends face toward
comprising

a respective end bushing disposed in the facing open end of each of the pipes, each end bushing having a brim and the brim extends beyond the end of the pipe and toward the brim of the other end bushing, the brims having outwa terminal end surfaces which abut when the pipe connected with their open ends facing toward ea each pipe having an interior surface and each end b including a respective insertion plug extending into th respective pipe for resting against the interior surface

first terminal face located
stopper member disposed at th
he insertion plug of each end
beyond each compressive stopper member for b
pressed against the compressive stopper membe
pressing the compressive stopper member to d

te end portions, respec
nd portions, each inse
being installed in and e
a respective cavity of the end bushing,
, including a respective means for fixing
rod to the end bushing and for also pu

4,756,640

AXIAL RETAINING MEMBER

Glenn F. Gehrke, Brighton, Mich., assignor to Components Inc., Auburn Hills, Mich.

rst radial flange means
said main body and

dial flange mea
twardly from said
said second end thereof,
a plurality of longitudinal slots fo
said second radial flange means

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RETE REINFOR
PORT

ox 3396, Orange, Calif

led Sep. 2, 1987, Ser. No. 92,071

Int. Cl.⁴ E01C 11/18

cing rods above an red including a pedes- ng rod and legs with ired elevation above buting weight p and bottom

l periphery than at said center ave mutually facing interior reatest heights toward l from said periphery

N AND SUPPORT

Dyson & Sons, Inc., Paines-

led Mar. 12, 1987, Ser. No. 27,8

ving a keel, and supported on said members, said boat varying contours at bottom and sides of same, and tensionable elements connecting the support l adjacent the ral movement

4,756,643

FOR PLACEMENT OF LATERAL DRA
INTO A MAIN DRAINAGE LINE FOR
PREFABRICATED COMPOSITE DRAINAGE
STRUCTURES

Hurley, P.O. Box 702, Marrero, La. 70073

Filed Apr. 25, 1986, Ser. No. 855,954

1. In an underground drainage system which includes a main drain line of a height substantially greater than its width, the drain line including an internal rigid core member and a sub flexible geotextile fabric encasement, allowing water veen the rigid core and the fabric, an apparatus for securing a lateral drain of similar construction to the main drain line, the apparatus comprising:

a. a flexible principal body portion compris fabric completely encasing a portion of the main drain line,

b. a flexible auxiliary body portion, likewise comprising geotextile fabric, flexibly secured to the principal body portion, the auxiliary body portion surrounding the lateral drain line

ement at the po ortion to the princ allowed from the e into the main drain line, and

d me he end points of the principal body the auxiliary body portion to the exterior of ain line so that foreign particles can not e of the main drain line and the lateral d

REROUNDING APPARATUS

Richard L. Williams, 9180 Parker Rd., Harrod, Ohio 458

Filed May 14, 1987, Ser. No. 50,092

Int. Cl.⁴ F16L 1/00, 55/18

1. An apparatus for rerounding flex other buried pipes in situ comprising,

a housing having a substantially cylindrical p outside diameter slightly less than the the

lling compressed

at least one bearing operably arranged in said housing,

a crankshaft journalled in said bearing,

an eccentric mounted on said crankshaft to generate vib tions in said crankshaft when said crankshaft is rotate

an air motor operatively mounted in said housing for ro ably driving said crankshaft,

an axial bore in said crankshaft;

at least one radial passage in said crankshaft in fluid flow communication with said axial bore, said bearing being axially intermediate said radial passage and said air motor whereby the air pressure on both sides of said bearing is substantially equal.

4,756,645

PORT STRUCTURE, PROCESS FOR PRODUCIN
THIS SUPPORT STRUCTURE, MEANS FOR
PRACTICING THE PROCESS

Edmond H. M. Balzer, 42, Allees Francois-Verdier, 31000 T louse, France

Filed Jun. 23, 1986, Ser. No. 877,426

Claims priority, application France, Jul. 1, 1985, 85 10,0

Int. Cl.⁴ E02D 29/02

U.S. Cl. 405—284 12 Clai

1. Support structure adapted to be erect orizontal ground surface, comprising

a stack of layers (15) of loose material, said la disposed on top of one another,

a flexible envelope (16) at least partially surrounding each said layer (15), each said envelope defining a border (18) situated substantially in a first substantially vertical plane (17), and

support wall (10) disposed on the said ground surface (5, 9) and extending substantially parallel to said first vertical plane (17), said wall having a portion extending vertically upwardly beyond said stack, wherein said wall is disposed at a predetermined distance from said stack so as to define a free space (20) between said support wall (10).

4,756,646

DEEP HOLD SETTLING CHAMBER

Gilbert Spencer, 1330 E. Lake Dr., Ft. Lauderdale, F

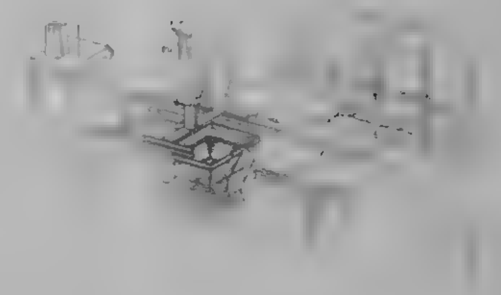
Filed Jun. 4, 1986, Ser. No. 870,368

Int. Cl.⁴ B65G 53/40

U.S. Cl. 406—122 11 Claims

1. A method for cleanly unloading dry bulk material, prone forming dust clouds during movement and agitation and subject to damage from wetting, carried by ships in below deck holds, a plurality of the holds being filled with the material and at least one of the holds being empty, comprising the steps of:

disposing a portable open-topped, intermediate station in the at least one empty hold;



station through closed conduit means lection station, whereby exposure of th conditions likely to cause dust clouds le material is minim

4,756,647

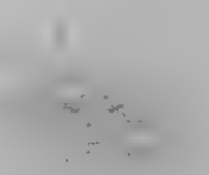
METERING SLIDE FOR FINE-GRAINED SO

Hans-Georg Fassbinder, Am Annaschacht, Fed. Rep many, assignor to Kloeckner CRA Technologie Gm Rep. of Germany

Continuation of Ser. No. 832,670, Feb. 25, 1986, aba This application Sep. 8, 1987, Ser. No. 96,291

Claims priority, application Fed. Rep. of German 1985, 3507973

U.S. Cl. 36



g means for housing said de ring disposed against an plate means, wherein the first slide ring exhibits a inner diameter and an outer diameter 3 to 10 mm than said inner diameter;

a second slide ring disposed agains sliding plate means, said first a located within said slide casing

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ting by pressure

ROTATABLY ADJUSTABLE BORING BAR

F. Cusack, Grosse Pointe Park, Mich., assignor to GTE Valeron Corporation, Troy, Mich.
Continuation of Ser. No. 814,941, Dec. 30, 1985, abandoned
This application Nov. 2, 1987, Ser. No. 117,893
Int. Cl.⁴ B23B 29/02

g bar comprising an elongated hollow
ing an axis of rotation,
nterchangeably mounted on said elongated
shaft member at a first end,
l hollow first shaft member having an interior
the end opposite said first end, said interior
tending in a radial direction and along the axis

otatably hold-
elongated first
opening in a

tionship,
l positioning means being located at
along the axis of rotation and said third
means being located at an intermediate posi-
respect to said first and second positioning
by said second shaft member is operable to
longated hollow first shaft member and
l hollow first shaft member to axially

RBORE FOR THE BILATERAL ATTACHMENT OF PLANE SURFACES TO BOLT HOLES

h Heule, Kristallstrasse 6, 9436 Balgach, Switzerland
Filed Jan. 29, 1987, Ser. No. 8,235
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1986, 3602667
Int. Cl.⁴ B23B 51/00

408—178 9 Claims

interbore for the bilateral mounting of plane surfaces
ising a tool head, means for driving the
wo cutting heads having cutting edges,
ake-up slot means within which the
th the cutting edges pointing in
g heads being received in the
y that they may be selectivel

l head for guiding the two cutting heads and for assisting in the transmission of cutting forces from the cutting heads into the tool head wherein the guide means

includes a rib extending inwardly from a wall of the slot means, the rib intersecting a central longitudinal axis of the tool head
d interacting with respective surfaces on each

4,756,650

TWIST DRILL

Koichiro Wakihira, Kobe; Michitaka Katsuta, Hyogo; Masayasu Hino, Hyogo; Kouhei Matsumoto, Hyogo; Yoshio Nakahara, Hyogo, and Tosio Sasayama, Hyogo, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan
Filed Nov. 26, 1986, Ser. No. 935,516
Int. Cl.⁴ B23B 51/00

1. A twist drill, comprising, a body, the margin lips thereof each extending in a triangular shape in cross section toward a main flute, and a subflute having a substantially U-shaped cross section and axially formed in an inner portion thereof adjacent to the axis of the twist drill along the main flute for a predetermined distance from a tip thereof wherein the web thickness of said subflute at a tip of said twist drill is 0.04 to 0.11 times the diameter of the drill and the axial length of said subflute is 0.4 to 0.11 times the diameter of the drill and wherein the back taper of a diameter at least of a portion of the circumference corresponding to a portion including the subflute is in the range of 0.1 to 0.4 mm/100 mm

4,756,651

CARGO RESTRAINING DEVICE FOR PALLETIZED LOADS

J. Van Gompel, Fremont, Ind., and Ronald R. Akey, Footville, Wis., assignors to NP Marketing Corporation,

Continuation of Ser. No. 898,757, Aug. 13, 1986, abandoned, which is a continuation of Ser. No. 640,338, Aug. 13, 1984, abandoned, which is a continuation-in-part of Ser. No. 370,131, Apr. 20, 1982, Pat. No. 4,515,506. This application Feb. 9, 1987, Ser. No. 13,197
Int. Cl.⁴ B60P 1/64, 7/13

U.S. Cl. 410—46 3 C

2. A cargo restraining wheel-free device comprising,
ted platform for interengagement
load upon said pallet, said pal
ng an upper surface, a lowe

tal portions separated by a slot therebetween for receiving a cross-tie of the pallet upon insertion of said platform into the space between said upper and lower surfaces of said pallet with said portions adjacent the sides of said cross-

(b) a vertical frame extending upwardly from one end of the platform, and
(c) a handle and hinge means at one side of the platform pivotally securing the handle to said frame at a pivot, said vertically-extending member being connected to a horizontal friction member adapted to extend downwardly beyond the bottom of said pallet when said handle is moved downwardly and; said second pivot being displaced past its vertically aligned lowermost point of rota
aid first pivot and toward

cal frame when said handle is moved downwardly, said vertically-extending members being thereby angled with their lower ends further away from said vertical frame and platform than their upper ends, thereby locking said handle in said downward position; said horizontal friction member in its said extended position acting by contacting an underlying supporting surface to tip said frame to effect frictional contact between said platform and upper support surface to prevent movement of said pallet with respect to said platform, and restrain movement of said device with respect to the underlying support by resulting increase in frictional contact between said horizontal friction member and said support surface, at h
l horizontal mer
h is placed n

THREADED NUT RESISTANT T

Edwin E. Hatter, Torrance, Calif., assignor
ration, Torrance, Calif.

said threaded end projects, said nut compri
a bearing face, an internally threaded passag
said bearing face, said bearing face being adapt
against said surface, said body also having a rete
axially spaced from the bearing face, said body als
exterior torqued surface narrowing in its d
the bearing face;

a spinner having an exterior surface
shoulder overlaying each of sa
spinner to said body against a
the spinner to spin freely around said body, sa
revolution being tapered, the axial length of sa
being such that at the end having the bearing
spinner is relieved from said bearing fa
when said bearing face bears against sa
no impediment to the free rotation
nner shrouding said body so as to p

ody further having an axially exten
which bears tool-engaging surfaces, and havin
of least resistance to torque immediately adjac
end of the torqued surfaces of the body and of th
whereby when a predetermined torque is exerted
the stub torques off, and leaves the nut set at said
ib passing axially through
nut body fully and c

SHEETS

Hellmut Berger, Neulengbach, Austria
Co., Rehau, Fed. Rep. of Germany
Filed Sep. 23, 1983, Ser. No. 53
Claims priority, application Austria, Sep. 2

U.S. Cl. 411—411

1. A fastening element for packing
(a) a body having a lateral surface,
(b) a head plate having a diameter cons

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4,756,654

FASTENING DEVICE

J. L. Clough, Acton, Mass., assignor to TRW Inc.,

nuation of Ser. No. 620,763, Jun. 13, 1984, abandoned

6B 37/16

5 Claims

ection to a helically
aid component compris-

molded plastic body having a wall defining a generally
ndrical aperture having an entrance end opening to
r of said body for axiallly receiving said male
ng member,

st and second diametrically opposed and longitudinally
ending series of a multiplicity of axially spaced inde-
idently flexible leg members formed integrally with
d body, each of said leg members in each series being
ced from the next adjacent leg member a distance equal
he pitch of said helically threaded male connecting
d having a tapered cross-section with a rela-
base and a relatively thin free end and extend-
at least a portion of the circumference of the
the aperture in a helical path corresponding to
threads on the male connecting member,

ch of said leg members being defined by a pair of
faces inclined at angles in the range of 30 to 45 degrees
a first direction away from the entrance to said aperture
l being resiliently deflectable independently of said
ll in said first direction but resisting deflection in a
nd direction opposite said first direction; and,
f said leg members further have a
tending flat on their free ends

4,756,655

MECHANICAL MANIPULATOR

John W 1363 University Dr., Menlo Park
4025

Filed Dec. 15, 1986, Ser. No. 941,7
Int. Cl.⁴ B25J 3/02

1. A manipulator apparatus comprising
- a control handle adapted to be positioned
  dimensions,
- a fixture for supporting a tool to be positioned
  of said control handle,
- a joint means comprising an effective ball and socket joint
- a first linkage means connected between said joint means and said control handle for moving said effective ball and socket joint means in three dimensions responsive to movement of said control handle and with the effective ball and socket joint means moving in a direction opposite to the direction of said control handle, and
- a second linkage means connected between said first linkage means and said fixture for moving said fixture to move the tool in three dimensions responsive to movement of said effective ball and socket joint means and with the tool moving in a direction opposite the direction of said effective ball and socket joint means and in a direction the same as the direction of said control ha
  imparted to said control handle ca
  in a direction the same as the di
  handle,

each of said first and second linkage means including four link members rotatably connected in a parallelogram and a gimbal connected to one of said link members f
age means from a support housing.

4,756,656

SECTIONAL DEVICE HANDLING TOOL

Clark B. Candee, Monroeville, Pa., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 3, 1986, Ser. No. 835,665
Int. Cl.⁴ G21C 19/00

segment, each of said sections including first and second coupling means respectively mounted at opposite ends thereof, all of said first coupling means being substantially identical to one another, all of said second coupling means being substantially identical to one another, each of said first coupling means

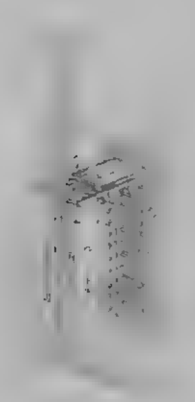
and for connecting said control line thereto
ans including said second coupling means con
first coupling mea
pport means in

4,756,657

STACKER BIN SHUTTLE

Thomas Kinney, Crete, Ill., assignor to Interlal
Brook, Ill

Filed Apr. 4, 1986, Ser. No. 848,456
Int. Cl.⁴ B65G 65/06



a pair of endless chains extending
carriage mounted on sprockets at t

said carriage in
- a pair of side
- a beam mem
  carriage sid
- a cam plate
- a curved slot
- a disk mount
- a cam follow

4,756,658

DISABLED CAR CARRIER VEHI

Vernon S. Moore, Ringgold, Ga., and Kenneth A
nooga, Tenn., assignors to Holmes Intern
nooga, Tenn.

n about said axis
ld-down means for locking s
inadvertent tilting of said platform wher
and disabling means for cooperating wit
the platform is locked by the hold-dow
n of said second
by said hold-d
s actuated to d

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ened longitudinally down a middle thereof, said bas
e affixed to an underside of said superstructure,
onveyor assembly split into two sections and rota-
y mounted within said base frame on both sides of said
m member
ns for driving simultaneously said two sections of
conveyor assembly forwardly in one instance, and
wardly in another instance so as to load and unload a
nent of articles, each conveyor section being split into
ward part of the base frame and a colinear rearward
f the base frame, the rearward part including
ir of support bearings spaced apart and mounted
gh an upper portion of a web of said I-beam member,
r of end bearings, spaced apart and mounted to said
frame
unted between one of
l end bearings

gated endless belts extending around sa
ngated plate mounted to and extending fr
member to said base frame to sup
the forward part of the base frame

uted between the upper portion of the web of said
n member and said base frame, and
endless V-belt extending around said V-pulley and
rollers so as to rotate said power rol
nveyor assembly uses an endless be't
and power rollers for the forward

4,756,660

RUCK WITH ROTATABLE PLATFORM SUITABLY
SIGNED FOR APPROACH AND COPENETRATION
ERMEDIATE TRANSPORTATION MEANS, FOR
ATICALLY TRANSFERRING AIRCRAFT CARGO
UNITS

ranco Cesarini, Ariccia, Italy, assignor to Geo Meccanica Idrotecnica S.R.L., Campoleone, Italy

Continuation of Ser. No. 748,461, Jun. 25, 1985, abandoned. This application Mar. 30, 1987, Ser. No. 31,217

Claims priority, application Italy, Jul. 2, 1984, 4848 A/84

Int. Cl.⁴ B60P 1/52

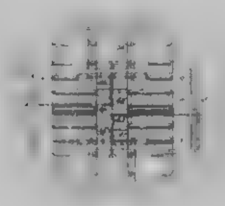
414—536 2 Claims

owable truck comprising
rigid frame supported by wheels, at least one pair of which steers the truck and is connected to a drawbar,
at least one end platform fixed to the frame to project transversely therefrom above a pair of wheels to form a service board
l platform rotatable on thrust bearing means carried
l about a vertical axis, said platform in-
ents which have their major
l and spaced-apart relation-

e longitudinal axis of said frame and projecting beyond it, said trapezoidal elements being joined to an intermediate rectangular element and to two lateral rectangular end elements which do not project transversely beyond the frame, said central platform being inscribed in a circle substantially tangential to an inner side of said at least one end platform and having a diameter substantially equal to the major dimension of said at least one end platform, and forming a support floor disposed along the longitudinal axis of the truck, to define transverse projecting and re-entering parts alternating along the longitudinal sides of the truck for approach and copenetration by complementary terminal parts of an intermediate transportation means;

a vertical shoulder disposed on each of said lateral rectangular end elements parallel to the longitudinal axis of said trapezoidal elements to form guides and offer protection against lateral movements of cargo units carried on said central platform, said shoulders having their ends flared t form a lead-in;

load blocks which can be lowered below an upper surface of said central platform and disposed at ends of the trapezoidal elements over which sliding takes place to block cargo
arried on said central platform fr



control means for lowering said load blocks
locking means for locking the rotation of the ro
form in positions 90° apart;
said trapezoidal elements including a perimetral sectio
support and retain load slide means having axes paralle
each other and perpendicular to the bases
trapezoidal elements,
said intermediate rectangular and lateral rectangular
elements carrying ball rollers to form a resting and sli
surface for cargo units;
said load blocks being movable from a first position in which they project upwardly from the support floor to a second position in which they are recessed below the support floor,
retaining means for retaining said blocks in said fi
and
release means for releasing said retaining means, said blocks having lead-in means formed in the surfaces of the blocks which face outwards from the truck, and said lead-in means being cooperable with actuating surfaces on a cargo unit for releasing said retaining means by utilizing

4,756,661

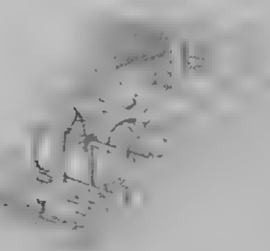
MOTORIZED OPERATOR UNIT FOR MANUAL
ADJUSTABLE FORK MECHANISM

Robert L. Smart, State Route 235 North, New Carlisle, 45344

Continuation of Ser. No. 891,635, Aug. 1, 1986, Pat. N 4,688,982. This application Aug. 19, 1987, Ser. No. 87,14

The portion of the term of this patent subsequent 2004, has been disclaimed.

Int. Cl.⁴ B60P 1/50; B66F 9/14



as forks which are adapted to

elongate guide means supported by the suppo
a plurality of fork retainer members, each
member being movable along the elongate
motor means,
connector means connecting the motor mean
retainer members for movement of the fork retainer me

support str

4,756,662

VARIBLE COMPLIANCE MANIPULATOR

Kazuo Tanie, Ushiku; Makoto Kaneko, and Kazuhito Yokoi, both of Ibaraki, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Mar. 30, 1987, Ser. No. 31,59

Claims priority, application Japan, Mar. 31, 19 r. 15, 1986, 61-298305

Int. Cl.⁴ B25J 9/

414—729

t one end thereof with
ng segment through a

OD FOR OPERATIN
Shirasu,
Japan, assignors to Tokyo
Kawasaki, Japan
Filed Dec. 29, 1

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4,756,664

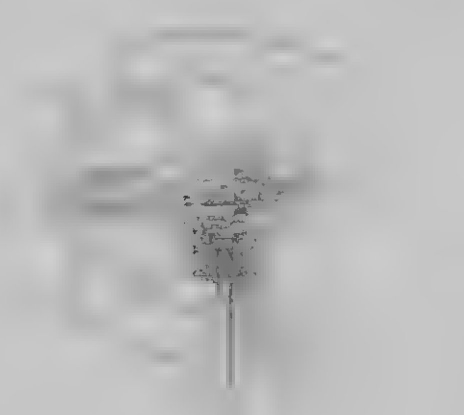
…GE OIL SYSTEM

… Bettenga, and Brian Tjenstrum, all of Rockford, Ill., assignors to Sundstrand Corporation, Rock…

…ivision of Ser. No. 784,325, Oct. 3, 1985, Pat. No. 4,683,984. This application Feb. 24, 1987, Ser. No. 17,977

Int. Cl.⁴ F01D 25/2…

…—375 … 9 Claims



…neans rotatably mounting said rotat… …ousing, drive means for said rotatable …aft extending through said stator means, means including a …ssage through said stator means for delivering lubricating oil … said bearing means, and scavenging means including a scav… …tlet for scavenging lubricating … operational positions thereof … …nge oil outlet or by gravity

…NTRIFUGAL COMPRESSOR

…zo Katayama; Taku Ichiryu; Tsuneyoshi Mitsuhashi; Masanori Kobayashi, and Yasushi Mori, all of Takasago, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

…n of Ser. No. 838,562, Mar. 11, 1986, abandoned. This application Sep. 2, 1987, Ser. No. 93,141

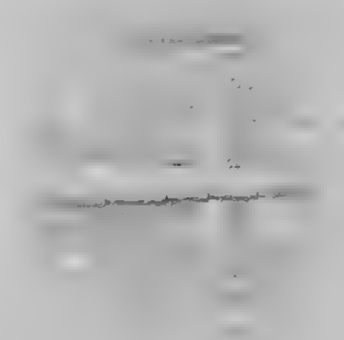
priority, application Japan, Feb. 3, 1986, 61-13175…

Int. Cl.⁴ F01D 25/18

…mber mounted at one end …ther, said head chamber having … axi… …and

…aid head chamber by fastening mean… said annular body having a plurality of passageways extending therethrough each of which is open to at one end thereof and communicates with a respective one of said plurality of passageways of said head chamber, and

external piping fixed to said annular body and open to and communicating with said passageways of said annular …



…ly and said external piping fixed theret… …n integral independent structure such that …aid fastening means are unfastened, said main chamber and said head chamber are separable from said integral structure, and

when said main chamber and said head chamber are separated from said integral structure, said structure remains independent and integral with said annular body remain… …nting position

4,756,666

UNITED SAIL WINDMILL

…ldencio A. Labrador, 1312 Leaf Ter., San Diego… Filed Jul. 19, 1984, Ser. No. 631,32…

1. A "Type No. 1 United Sail Windmill" as illustrated by FIG. 1 and supported by detail drawings FIG. 2 and FIG…

…ality of large square-faced wind sails, made of lig… …etal sheets or strong light cloth/fabrics fastened … light strong square frame, put together in …s, arranged in a single file procession closed each one after the other with a clearance to allow each sail to flip to the right or to flip to the left and moving along a long straight line in one direction and along another long straight line parallel to the first line but moving to the opposit direction—transverse to the general direction of the wind

…vertical mast for each sail, made of light strong material …h as bamboo poles or reinforced aluminum pipes, that …s the sail in place at vertical posture and at the same …rves as frame member to which the said fabric is … which is reinforced by steel … …tached to the upper Power …

…ve as drive tee… of said Powe…

…of Power Cable made of strong rope, one at the up… and … level as mentioned … said large sails … …dless drive chain … apart from each other … which the upper end and … re securely attached re…

…ree or more …

…minal Gear Wheels arranged in a half-h… …on to hold and stretch out each of the … …id upper level and the l… …re driven by said Pow… …t fit into the notches on th… edges of the said Gear Wheels;

said three Terminal Gear Wheels are quite far apart fr… each other such that the half-hexagonal formation ha… …lius of 100 feet or more in order to sparate the …allel lines of sails away from each other for l…

…ial-Cable Railway parallel and l… …nd every level and every line of … such is a high tension steel or nylon rope, suspended held in place by tall posts or steel towers separate from the support posts for the said terminal gear wheels, which will carry the whole weight of each and every sail including the weight of the Power Cable plus the weights of the deep-grooved carrier Roller Wheels, which will hold the sails from swaying sideward due to the horizontal forces of the wind, and which will relieve the … …ertical loads at the same time prevents … …rminal Gear Wheels.

…p-grooved carrier Roller Wheel securely attached … …p end and to the bottom end of each and ever… sail-mast at the point where the Power Cable is als… …nected to each mast, which rolls on said Aeri… Railway carrying the sail as being pushed by the w… deep groove of which being at least 5 times the diameter of the Aerial Cable Railway so that it will not be de-railed during violent weather or when it is working with high … winds.

…ermediary Suspension Support in the form … …enary wires or ropes strong in various strategic poin… along the span length of said Aerial Railway, transve… and connected to various strategic points of th… level said Aerial Railway by means of an erect… …nectors with the tip of its bottom hook being clamped to the said railway to lift it from bel… clear passage of the carrier roller wheels, and …

…aerial ra…

A Cable-…

…attached to the …

… controlled to be … …wer Cable at th… …ly vertical at a…

A control string … string tied to th…

…eather or whe… …king limit, mak…

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ar passage of the large
aid support post due to
and strong enough to hold the said
el in correct position against the high
e pulling it outward

spee
levels

nerator driven by an air turbine

4,756,66[illegible]
[illegible] CAPACITAN
tek, East Windsor, and M
of Conn., assignors to United
Hartford, Conn.
ed Jul. 6, 1987, Ser. No. 69,[illegible]

upon said stationary side for sending
et blade pitch and for receiving position
als relative to said blade pitch,
l means mounted upon said rotating side for receiving
control signals and for sending said position signals

nunications link for carrying said signal
and second means, said link having,
apacitor having a first plate mounted to said
ide and electrically attaching to said first
aving a second plate mounted to said rotating
aid second means
ides a high pot

ond means to said first means, and
a low side capacitor having a first plate mounted to
stationary side and attaching electrically to said fi
means and a second plate mounted to said rotating side and electrically attaching to said second means such that said low side capacitor provides a differential, low poten-
trol signals from said second
nd said position signals from
ad means

AIR INTAKE COVER FOR A BLOWER [illegible] APPARATUS

James Gassen, Charlotte, N.C., and John E. Reed
assignors to Textron Inc., Providence, R.I.
Filed Jul. 23, 1987, Ser. No. 76,76[illegible]
Int. Cl.⁴ F04D 29/70

for an air intake openi
rising

a plurality of openings for the passage of air radially into the interior of the protective cover, the total crossectional area of the openings in the wall member exceeds the crossectional area of the air intake opening by 1.5 to 3 times for reducing the presssure per unit area of the air

4,756,669

AIR COMPRESSOR CONTROL APPARATUS

Yasuhisa Hata, Akashi, Japan, assignor to Nippon Air Brak
Co., Ltd., Kobe, Japan
Filed Jul. 23, 1987, Ser. No. 76,80[illegible]
Claims priority, application Japan, Jul. 31, 198[illegible]
Int. Cl.⁴ F04B 49/0[illegible]

an air reservoir in such a

ssor and to transmit a signal having a
resentative of such air pressure;
first comparator means connected to recei
from said pressure sensor for comparing said value
first predetermined value;
(c) a first means connected to said first comparator mea
providing said first predetermined value;
(d) a first signal output means connected to receive a signal from said first comparator means for passing a first control signal to an air compressor drive motor based on said signal received from said first comparator means.
a second comparator means connected to receive said signal from said pressure sensor for comparing said va
th a second predetermined value;
a second means connected to said second compar
means for providing said second predetermined value
(g) a second signal output means connected to receive a signal from said second comparator means for passing a second control to such air compressor drive motor based on said signal received from said second comparato

om said sensor and at a secon
id second comparator means

4,756,670

[illegible]ETHOD AND APPARAT[illegible] SENSITIVE DEVICES

Christopher G. Arai, Danville, Calif., assignor to Andros Anal
zers Incorporated, Berkeley, Calif.
[illegible] Oct. 17, 1986, Ser. No. 920,53[illegible]
[illegible]04B 49/00; G01F 1/68; A61B 5

ndicating the change in the
h is insensitive to variation
d comprising, maintaining

detecting changes
device with resp

pump, said ser

4,756,671

LOW DAMAGE HYDRAULIC FISH P[illegible]

Eldon L. Grimes, deceased, late of King Co
Monterey Grimes, executrix, Seattle,
Marco Seattle, Inc., Seattle, Wash.

Siemens Aktiengesellschaft, Berl
Germany
Filed Dec. 5, 1986, Se
Claims priority, a
1986, 3602339

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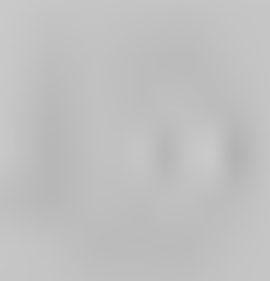
ed with said outlet, and
nance means at a definite pressure for replenish
n said liquid ring during operation of the pump
iuding at least one injec-
aid end bells in an inlet
being disposed prox-



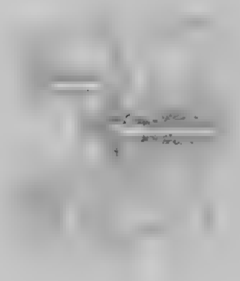
ie pump and
a mixture of
caping from
ereof

4,756,673

TURBOCHARGER

r, Ohme; Nobuyuki Ikeya, To
Jukiko Kitazawa, Omiya, all of Japan, assignors to
Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo,

uation of Ser. No. 771,049, Aug. 30, 1985, abandoned.
This application Apr. 24, 1987, Ser. No. 45,167
priority, application Japan, Sep. 3, 1984, 59-132773



rbocharger comprising: a turbine casing, a compres-
g, a fluid-cooled casing joining said turbine and com
casings, a turbine shaft extending from said compressor
ssing through said fluid-cooled casing into said turbine casing, a bearing casing arranged adjacent said compressor casing, axially spaced anti-friction ball bearings disposed in said bearing casing and supporting said turbine shaft in cantilever fashion, a one-piece cylindrical oil film damper engaging said ball bearings, and being spaced from said bearing casing to define a gap with said bearing casing over the axial length of said oil film damper, means for supplying oil to said gap for freely
atingly supporting said oil film damper in said bearing cas-
n said oil film damper and in
o loosely connect said oil film

n relative to said bearing casin

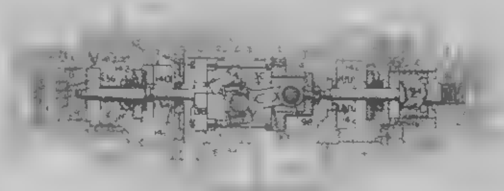
4,756,674

RECIPROCATING GAS COMPRESSOR HAVING A S HOUSING AND CROSSHEAD GUIDE MEANS

Bernard F. Miller, Corning, N.Y., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Aug. 24, 1987, Ser. No. 88,364
Int. Cl.⁴ F04B *21/02, 41/06*

13 Claims



ompressor, h
ans, comprising
a crankcase,
said crankcase being subdivided, having sepa
with mating surfaces; and
means fastening said mating surface of one of said portions to said mating surface of another of said portions, and further including
f crossheads confined within said crankcase,
ening said crossheads together, in spaced-apart disposition, for common reciprocation;
a crankshaft journalled in said crankcase,
a connecting rod coupled, at opposite ends thereof, to s
crankshaft and to one of said crossheads; wherein
said crankshaft and said mating surfaces have first means cooperative for (a) guiding said crossheads for linear reciprocation, and (b) inhibiting movement of said crossheads in horizontal excursions
said crossheads and one of said portions have second means cooperative for (a) guiding said crossheads for said linear reciprocation, and (b) inhibiting movement of said crossheads in vertical excursions,
fastened to opposite end

comprise cylinders,
each cylinder having (a) valved gas
ports, and (b) a piston reciprocable th
means coupling said pistons to said crossh
said first means comprises (a) slides projecting from sides of said crossheads, and (b) troughs formed in said mating surface of one of said portions,
said slides are slidably engaged with said troughs; and
said troughs confront said mating surface of the other of said portions and, therewith, define channels which slidably nest said slides therein.

4,756,675

SCROLL TYPE FLUID TRANSFERRING MACHINE WITH SEPARATE MOTOR DRIVING EACH SCROLL

Masayuki Kakuda, and Etsuo Morishita, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 20, 1987, Ser. No. 51,774
Claims priority, application Japan, Jun. 27, 1986, 61-151969
Int. Cl.⁴ F01C *1/04*, F04B *17/00, 35/04*

U.S. Cl. 418—55 4 Claims

1. A scroll type fluid transferring machine for sucking, com-
nd discharging

---

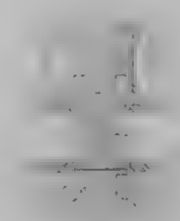
l having a second wrap plate which is opposed
bined with said first scroll,

wherein a cente
shaft is in agree
nd scroll,
econd scrolls a
g means for

GEROTOR MOTOR WITH VALVIN STAR

Marvin L. Bernstrom, Eden Prairie, Minn., assignor to Eaton Corporation, Cleveland, Ohio

Division of Ser. No. 858,151, May 1, 1986. This application Oct. 2, 1987, Ser. No. 103,853
Int. Cl.⁴ F03C 2/08, F04C



ing member and
rically disposed wit
ing member and said star member having orbital movement relative to the other of said members, and said star member having rotational movement relative to said ring member and
ing means; the internal teeth of said ring member and
nal teeth of said star member interengaging to define
rality N+1 of expanding and contracting fluid volume chambers during said relative orbital and rotational movements; said star member including first and second oppositely disposed end surfaces and said housing means comprising first and second endcap members, said first and second end surfaces of said star member being in sliding sealing engagement with adjacent end surfaces of said first and second endcap members,
ly; shaft means supported for rotation relative to said
econd endcap members and means operable to trans

chambers, respect
ber defining a fi

member defining
as fluid commur

with said secon
endcap member d
f valve passages, each of said valve passages being in
us fluid communication with one of said volume
s and in commutating fluid communication with said first plurality N of fluid ports, said end surf
endcap member defining a second plura
passages, each of said valve passages bein
of said volum
nication with

METHOD OF MANUFACTURING A WEAPON

Bruno Hribernik; Manfred Gstettner, and Alexa hauser, all of Kapfenberg, Austria, assignors to Edelstahlwerke Aktiengesellshaft, Vienna, Austr

Division of Ser. No. 6,561,279, Dec. 14, 1983 The

said jacket tube and

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machining said cu

n said point to said apertu

.TE DEVICE FOR TIRE RETREADING APPARATUS

Dar W. Magee, Richardson, Tex., assignor to Long Mile Rubber Company, Dallas, Tex.

of Ser. No. 835,335, Mar. 3, 1986, Pat. No. 4,662,858

This application Oct. 17, 1986, Ser. No. 919,989

n of the term of this patent subsequent to May 5, 2004, has been disclaimed.

retreading tire ca

ding an envelope to the tire carcass

l plate positionable in an opening of

en opposing

length of less

cumferential length of one said tire

l ribs mounted on an outer curved surface of plate and extending substantially from one end of said to an opposing end thereof and spaced apart a distance generally the same as the space between the beads of tire carcass to be retread, said ribs being engageable interior surfaces of the tire beads when said plate is ed generally within said tire opening between the tire s, and

ble latching means for use in retreading s

said means being mounted on an inner su

FOR COOLING AND CONDI MELT-SPUN MATERIAL

Stumel, Trummle, and A. Blum, Domat-Ems, both of Switzerland, assignors to Ems-Inventa AG, Zurich, Switzerland

Filed Sep. 16, 1986, Ser. No. 908,040

Claims priority, application Switzerland, Sep. 18, 1985,

Int. Cl.⁴ B29C 47/88

25—72 S 31 Claims

n apparatus for spinning filaments from a melt, the provement which comprises a nozzle plate having a plurality of arranged passages in the generally annular pattern dapted to permit said melt to flow therethrough to form a tream of said filaments, a dispersing head downstream of said late and in said stream, said head being substantially in a form a cylinder with its axis substantially parallel to said stream nd having an upstream end and a downstream end, a coolant urce, a coolant inlet connecting said coolant source with said end at a point, a wall of said head substantially parallel to said

whereby a

said aperture.

4,756,680

APPARATUS FOR HIGH EFFICIENCY HOT ISOSTATIC

Takahiko Ishii, Kobe, Japan, assignor to Kabushiki Kaisha Seiko Sho, Kobe, Japan

Division of Ser. No. 676,294, Nov. 29, 1984. This application Mar. 25, 1986, Ser. No. 843,689

Claims priority, application Japan, Nov. 29, 1983, 58-226155

The portion of the term of this patent subsequent to Sep. 18 2001, has been disclaimed.

for high efficiency hot isostatic pressing in a sostatic pressing system comprising

hot isostatic pressing furnace which comprises a high pressure vessel comprising a vertical, pressure-resisting cylinder having one closed end and a plug removably fitted closely in an opening portion at the other end of said cylinder, and a treating chamber surrounded with a heat insulating barrier and capable of being loaded into and unloaded from said high pressure vessel together with a work enclosed therein, said heat insulating barrier being internally provided with a heater; said hot isostatic pressing furnace having a gas supply and discharge means for subjecting the work to a predetermined high temperat and high pressure treatment in a gas atmosphere;

an auxiliary station substantially comprising a vertical cylinder capable of enclosing therein and hermetically sealing said treating chamber, said auxiliary station having a gas supply and discharge means; and

a carrier device for carrying said treating chamber together with the workpiece between said hot isostatic pressing

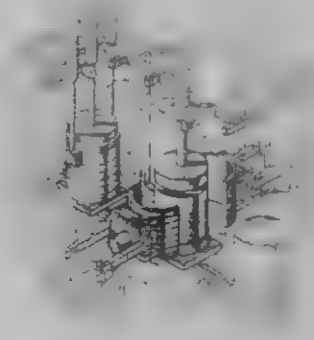
4,756,681

STAGED MOLD FOR ENCAPSULATING HAZARDOUS WASTES

Samuel L. Unger, Los Angeles; Rodney W. Tettes, Alhambra, and Hyman R. Lubowitz, Rolling Hills Estates, all of Calif., assignors to Environmental Protection Polymers, Inc., Hawthorne, Calif.

Filed Oct. 29, 1985, Ser. No. 792,336

Int. Cl.⁴ B29C 43/20; G21F 9/36



mold body and s

rted on the

les with the

st and second mold bases

ed material on the bott m

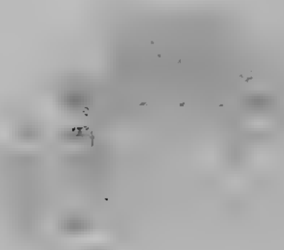
in the bottom

, France

Filed May 15, 1987, Ser. No

n priority, application France, M

Int. Cl.⁴ B2



engesellschaft (VI

Jun. 23, 1986, Se

pplication Austr

Int. Cl.⁴ A23P

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ıg mass and arranged subsequent to
amber as viewed in said predetermined
on of said transport and mixing screw

ıe storage chamber having an inner wall exhi
g substantially mutally parallel generatrices,
reparation chamber making a pressure-tight transition
said at least one storage chamber,
t one mold injection nozzle defining at least a portion
r charging at least one
least one plasticizable

zzle defining at least said por
ling conduit, and

MONITOR M
I-BURNER BOI

Nishikawa; Tooru Kimura, both
hara, Yokohama, all of Jap to Hitachi, Ltd.,
o, Japan

Filed Apr. 9, 1987, Ser. No. 36,483
y, application Japan, Apr. 9, 19
Int. Cl.⁴ F23N 5/0

ıs in a
s, com

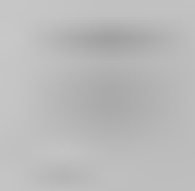
ber for one of the burners of each
ıg a flame image representative of the
said one burner,
intensity at a predetermined area of a
he burners other than said one burner in
ng an optical fiber provided to said
to view said predetermined area of the

STRIP EDGE HEATING BURNER

Derek R. Davies, Bramhall, and Philip J. Young, Wrexham, both of England, assignors to Nordsea Gas Technology & Air Products Limited, England

Filed Dec. 5, 1986, Ser. No. 938,19
Claims priority, application United Kingdom, I

Int. Cl.⁴ F23D 11/36



f said chambers through the
nd beyond an outer surface of
said second chamber
an equal number of apertures of gene
tion surrounding each of said tubes
said apertures communicating with the interior of said second chamber
said tubes and apertures being sized so that the four corners of each tube are in line contact with an inner surface of each aperture to position said tubes in said apertures to create gas passages between said tubes and the inner surface of said apertures;
means to introduce a first gas into said first chamber and a

TORCH HANDLE WITH LOCKING VALVE

eter P. Sposino, Revere, Mass.; Clifford D. Raines, San An
nio, Tex.; Joseph P. DiSanto, Peabody, and Claudio P. M
Lynn, both of Mass., assignors to Wingaersheek E
quipment Company, Danvers, Mass.

Filed Jan. 16, 1987, Ser. No. 3,729

means actuable to on or off positions to s
unicate fluid from said inlet to said outlet

said valve body for selectively retaining
ns in the off position, with said locking
nhindered closure of the
ther said valve means or

arles Cabrera, Longmont; Reid W. Gunnell, Berthoud; Glenn E. Siemer, Boulder, and Eugene G. Stahlberg, Longmont, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 13, 1987, Ser. No. 14,745
Int. Cl.⁴ F27B 9/28

omprising
orming a toner fu
otatable on spaced axes
t guide means positioned closely adjacen
said first roll at the exit side of said fusing
et guide means positioned closely adja
he exit side of sa

APPA
CONTROL

Paul S. Hammond, Castle Bromwich; Geoffrey J. Pa
Sutton Coldfield, and David A. Churchill, Solihull
England, assignors to British Gas plc, London, Engla

Filed Apr. 1, 1987, Ser. No. 32,570
Claims priority, application United Kingdom, Apr
8609870

the regenerators, a second

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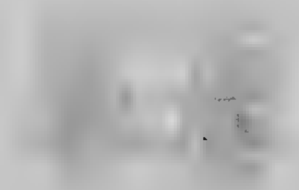
CONNECTING DEVICE
Igren, Kyrkvägen 5, S-430 80 Hovaas, and Izidor Brej
Järnvägen 10C, S-552 59 Jönköping, both of Sweden
Filed Sep. 16, 1986, Ser. No. 907,906
priority, application Sweden, Sep. 16, 1985, 8504274
Int. Cl.⁴ A61C 8/00



ntal prosthesis for connecting
implanted into body
thesis,
ation
shaped part
ber extending
r-shaped part

onding to the

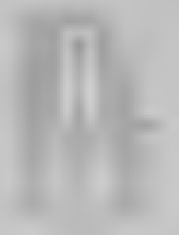
pular abutment and said heel forming

, (7) for locking said outer
shaped member

METHOD
, 1714 N. 37th St., Seattle, Wash. 981
Dec. 5, 1986, Ser. No. 938,456

zygomatic bone

4,756,691
SUPPORT FOR REMOVABLY FIXING A DENTAL PROSTHESIS ON A CROWN COVERING A PIVOT TOOTH, SO-CALLED ATTACHMENTS
Miroslaus Pilarek, Ostenstrasse 7, D-4840 Rheda-Wiedenbrück, Fed. Rep. of Germany
PCT No. PCT/EP82/00093, § 371 Date Jan. 4, 1983, § 102(e) Date Jan. 4, 1983, PCT Pub. No. WO82/03763, PCT Pub. Date Nov. 11, 1982
PCT Filed May 4, 1982, Ser. No. 459,540
Claims priority, application Austria, May 5, 1981, 1975/81



unted on a too
cket attached to the crown; a plug-shaped
ng from the prosthesis and insertable into said
id plug-shaped member having slots extending cross-
the end face of said plug-shaped member; said socket
-shaped member forming together a common bearing
cated cone taperi
f said tapered tr
ection of said plug-shaped me

4,756,692
TEACHING AID APPARATUS
, 1719 C.R. #23, Waterloo, Ind. 46
Filed Sep. 15, 1987, Ser. No. 97,209
Int. Cl.⁴ G09B 19/00

434—24

sidewall thereof and being operable to drain portions of the liquid therefrom.

positions of said first and second obj
contained in said chamber

4,756,693
READ A SAMPLE
MATERIAL
Shigeru Matsuno, Otsu, Japan, assignor to Kawashima-Orimono Co., Ltd., Japan
Filed Dec. 31, 1986, Ser. No. 948,018
Claims priority, application Japan, Jan. 20, 1986
Int. Cl.⁴ G06F 5/00

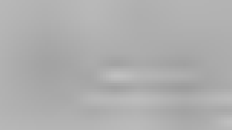
section
rface continu

ed first channel along the length
l central section and said upwa

l second channe
divide said cen

ECTOR FOR LOW PROFILE
ACKAGE
g; Roger L. Thrush, Clemmons,
onald J. Zuttue, Winston-Salem,
MP Incorporated, Harrisburg, I
Filed Dec. 19, 1986, Se

s being spaced apart transvers
o sets of contacts, one for each
avities and locked to said housing, guid
molded with the housing at each end of



said housing, the web being

LOCAL
rid Lane, Greensb
lvert S. Watts, Walkertown, all of N.C.
Incorporated, Harrisburg, Pa.
continuation of Ser. No. 874,181, Jun. 13, 1986

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face, and a terminal support platform extend-
the faces which positions a plurality of termi-
e terminal support platform, each with resil-
tongues adjacent the mating fa
e terminal support platform wh
he terminal support housing is interconnected
n the complementary connector;
means surrounding the terminals and the terminal
port housing, and
reconnection means including an edge card
said housing, orthogonally disposed relative to
l support platform and orthogonally disposed
he front mating face, for establishing a connec-
n each terminal and a corresponding conduc-
conductor shielded data cable, the edge card
ata traces, each trace being electrically con-
respective terminal.

,696

INSPECTION FEATURE FOR SURFACE MOUNT CONNECTORS

enas, Jr., Middletown, Pa., assignor to AMP rporated, Harrisburg, Pa.

nuation-in-part of Ser. No. 806,141, Dec. 6, 1985, Pat. No. ,911. This application Feb. 6, 1987, Ser. No. 11,560

ative housing having terminal receiving passages
nding therethrough, and
f said passages having an electrical terminal disposed
ein, said terminal having a mating section and a solder
lder tail having a distal end, said solder tail
lder joint inspection feature located a predeter-
ned distance from the distal end thereof, whereby when
connector assembly is soldered to traces on the printed
rcuit board forming solder joints between the solder tails
d traces a solder joint inspection feature that is engulfed
solder is indicative that there is sufficient solder forming
e solder joint and that the solder tail is adequately seated
ainst traces on the printed circuit board, whereas a
lder joint inspection feature that is not engulfed in sol
r is indicative that either the solder joint is formed of
sufficient solder or the solder tail is not sufficiently close
he traces.

4,756,697

MPRESSOR WITH PLUG HOLDER

ennis V. Hefling, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.

Filed Nov. 5, 1986, Ser. No. 927,325

Int. Cl.⁴ H01R 13/60

39—505 7 Claims

lug holder for a portable air compressor, the air com
having a base, a compressor casing mounted on the
d a recess between a portion of the base and a portion
sing, the plug holder comprising a first catch on the

ch, the second
ownwardly to

of the compressor can be inserted into
and second catches and frictionally

4,756,698

JET SYSTEM FOR SAILBOATS AND THE LIKE

Timothy J. Gorg, P.O. Box 18, LaCrescent, Minn. 5594

Filed Sep. 25, 1985, Ser. No. 779,477

for sailboats, comprising, in combination, a
de a boat hull, a water intake pipe from a bow
said turbine, a water exhaust pipe from said
of said hull for sea water to be forced there-
in said water intake pipe is bifurcated into two
inlet branch lines respectively coupled to the port side and the
starboard side of the sailboat, a butterfly valve connected at the
junction of said branch lines, control means for controlling the
butterfly valve to selecuvely vary the proportion of water
permitted into the branch lines to thereby steer the sailboat,
solar collector panels mounted on the sailboat for collecting
a solar energy collector coupled to said tur-
solar energy is the primary power means of

FOREARM SWIM FIN

Stephen A. Brom, 824 Rose Ave., Venice, Calif. 90291

Filed Jun. 16, 1986, Ser. No. 874,5

eans for pivotally
pposed sides of
said fin members tend to pivot under the influence of the water during the swimmer's forearm motion through the water;

means for limiting the pivotal motion of said fin members to substantially opposed outwardly extending positions during the swimmer's power stroke,

means for limiting the pivotal motion of said fin members during the swimmer's return stroke to substantially parallel rearwardly extending collapsed positions spaced from the swimmer's forearm by a predetermined distance, and

means for temporarily locking said fin members in said opposed outwardly extending position during both the power and return strokes of the swimmer.

4,756,700

WATER RECREATIONAL DEVICE

John P. Coleman, 524 Anchor Cir., Redwood City, Calif. 94065

Continuation-in-part of Ser. No. 789,395, Oct. 21, 1985, . This application Apr. 11, 1987, Ser. No. 48,080

Int. Cl.⁴ B63B 21/56

25 Claims

for the support of a person while being towed over the surface
f a body of water; an elongate balancing and steering control
member having a lower end rotatably secured to said means
otal movement relative thereto, and an upper end carry
by the person using the device and for
ning said balancing and steering con-
trol member relative to said means about the axis of rotation of
the securement of said lower end of the balancing and control
member to said means; latching means interposed between said
r end of the balancing and control member and said mean
ding for the support of a person and adjacent to and in
operative association with said axis of rotation for normally
securely holding said upper end of said balancing and control
member at a selected one of several possible height adjust-
ments above said means providing for the support of a person,
hing means having one latching part fixed to said
nd of the balancing and control member for rotation
th and a second latching part fixed to said means
or the support of a person; resilient means for nor
said parts in interlatched relationship, means ope
by said means p
tching said par
means for attai

GRADIENT

George K. Danko, Moreland Hills, and Ronald cord Township, Lake County, both of Ohio, eral Electric Company, Schenect

Filed Jun. 19, 1986

Int. Cl.⁴ H01J

l manufacture of a light source
light transparent envelope having an oblate el
and containing a halogen comp
spatially disposed and supported
a first predetermined diameter related to both
lower inner wall portions, the surfaces of said
being joined by a first predetermined radius of
the surfaces of said lower walls being join
termined radius of curvature, said light
axis with a second predetermined diame
its side walls, said
ether with a
steps of

a) providing (1) a first light-transm
open at both ends and having sa
diameter, said first member to primar
ing for said light source; (2) a second light-transm
tubular member open at both ends, said second m
having a diameter sufficient to serve as an exhau
during the method of forming said light sou
filament assembly having electrical membe

(b) heating said first member to soften one en
it to become a dome
substantially corresp
adius of curvatur

(c) mating one
the dome p
mating portions thereby fu
posite member,

(d) applying heat at a predet
composite member and then placing the co
ber into a mold having side portions each
toured shape which is substantially the sam
toured shape joining the upper, side and lo
said light source, said mold further having
tion which complementary mates with one
composite member, said mold being closed while at
stantially the same time a gas is applied having a suffi
pressure to cause the composite member to expand
take the shape of the contoured shap

(e) removing said composite member
inserting said filament assembly havin
bers so as to be spatially disposed w
tion of said composite member;

(f) applying heat at a predetermined

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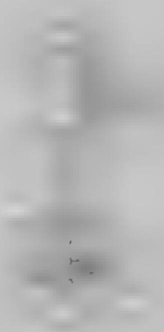
e member from said punch mold
filling the inner c
nd halogen com

ture and time c

WRIST BORNE LAUNCHER FOR TOY VEHICLE HAVING A FLYWHEEL MOTOR

Melvin R. Kennedy, New York, N.Y.; Dietmar Nagel, Chester, N.J., and Abraham A. Arad, Westport, Conn., assignors to Buddy L Corporation, New York, N.Y.

Continuation of Ser. No. 752,642, Jul. 8, 1985, abandoned, which is a division of Ser. No. 624,725, Jun. 26, 1988, Pat. No. 4,529,389. This application Nov. 4, 1986, Ser. No. 926,85



other hand of
ttery-powered d

f; wheel m

4,756,704

FRONT DERAILLEUR FOR A B

shi Nagano, Izumi, Japan, assignor to Sh
mpany Limited, Osaka, Japan

Filed Jun. 29, 1987, Ser. No. 67,22
ms priority, application Japan, Jul. 10, 1986, 61-1062

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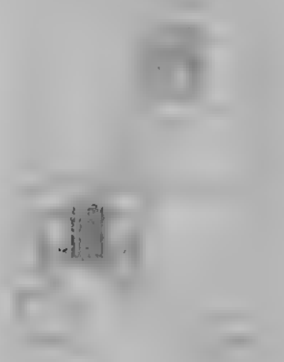
iii) first and second pivot shaf
second linkage members are pi
member, (iv) a movable member pivotally supported to said linkage members and carrying a chain guide, and (v) third and fourth pivot shafts through which said linkage members are pivotally supported to said movable member; said first linkage member comprising an operating arm f
ng said linkage mechanism; said first a

ther axial end with projection shaft portions
ardly through said first and second linkage

ter Beijbom; Staffan Grebius, both of Lund, and Goran E. William-Olsson, Goteborg, all of Sweden, assignors Gambro, AB, Sweden

Filed Dec. 8, 1986.
Claims priority, application Sw
Int. Cl.⁴ A61



monary system for the oxygen
which said patient's lungs are

using, said housing including
d arterial blood chamber,
and first venous blood cham
eans in said secon
lter means for fi
nous blood cham

blood

lood from said venous blood o
lood entry port means, arterial
ducting said arterial blood fr
on means to said arterial blood
d s for

Laguna Beach; Donald E. Bobo, Fountain Valley; Kenneth Rake, Laguna Niguel, and Robert R. Wevant, Clar Dennis R. Seguine, Mission Viejo, all of Calif., assig American Hospital Su
Continuation-in-part of

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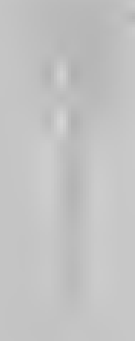
ND TETHER DEVICE
LABORATORY ANIM
iladelphia, and Bernard
Park, both of Pa., assignors to Trustees
f Pennsylvania, Philadelphia, Pa.



OPSY CATHETE
Cro S. Martin, M
t of Ser. No. 701,255, Feb. 13, 1985
. This application Jun. 2, 1987, Ser. No. 56,83
priority, application Canada, Feb. 14, 1984, 45

g and substantiall
d portion blending
forward end of the

n and a stiffer portion ex
n along a substantial length
trating outside the cannula

-ADJUSTING DISPO
CTION STRETCHAB
COVER
stevens, Appleton, Wis., assignor to Kimb
ton, Neenah, Wis.

fitting, generally

l between said waist sections, a pair of leg
ending along opposed marginal sides of said
crotch panel and opposed front and rear panels separated by said crotch panel, either of said front and rear panels being resiliently stretchable in a first direction
sorbent insert structure superposable
cover, including
and liquid impervious b
t core disposed therebetween; and
nt means for attaching and integrating
ud outer cover while allowing subs
d functional stretchability there

4,756,710
PH-MEDIATED DRUG DELIVERY SYSTEM
Joseph V. Bondi, Collegeville; Alice E. Loper, Lederach, both of Pa., and Edward M. Cohen, Princeton Junction, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Continuation-in-part of Ser. No. 720,652, Apr. 4, 1985. This application Mar. 7, 1986, Ser. No. 835,98
Int. Cl.⁴ A61K 9/0
24—400

erms of the drug in a buffered solution and allowing th
to pass from the drug reservoir through a membrane
tively permeable to the unionized form of the drug a
stantially impermeable to the ionized form of th

4,756,711
SELF-LOCKING PROSTHESIS, AND METHODS FOR PRODUCING AND FOR FITTING IN SAME
Christian Mai, 74 boulevard des Belges, 69006 Lyons, and Yves Crassas, Clinique Saint Charles, 38150 Roussillon, both of France
Filed Dec. 23, 1986, Ser. No. 945,670
Claims priority, application France, Dec. 24, 1985, 85 19

patible material having a sharp memory effect and a martensite transformation temperature (Ms) that is lower than the human body temperature, said pin including
a first end portion having a lon
the said point along approx
the pin to divide the first
separate branches;
a second solid middle portion, and
a third portion close to the junction

4,756,712
KNEE JOINT ASSEMBLY
William M. Clover, Jr., Trabuco Canyon, Calif., assignor to Orthomedics, Inc., Brea, Calif.
Filed Aug. 4, 1986, Ser. No. 892,965
Int. Cl.⁴ A61F 2/62
623—39 9 Claims

assembly for simulating a hum
prosthesis, the prosthesis includi
llow knee portions, the knee joint assembly
a first half member attached to one p
a second half member pivotally moun
member and attached to the other p
a locking pin assembly for locking sa
members together thereby forming
nal axis through the two portions; and
said first and second half members having opp
sloped surfaces forming an area of contact

ARTIFICIAL KNEE
John E. Cooper, Leatherhead, United Kingdom, assignor to Hanger & Company Limited, London, United Kingdom
Filed Oct. 14, 1986, Ser. No. 917,97
Claims priority, appl

er member in
r inclu

about a vertical ax
means defining a re
which said latch m
joint in its extended
said upper member in
portions defining cheeks a
ber defining a head, said he
checks, and
means in the anterior
said latch member
blade defining an a
a medial, late
being pivot
lever spans

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4,756,714

METHOD OF DURABLY SIZING TEXTILE YARNS, DURABLE SIZING COMPOSITION, AND DURABLY SIZED YARNS AND FABRICS PRODUCED THEREFROM

James E. Hendrix, Spartanburg; Nigel E. Neely, Rock Hill, and Martin K. Lindemann, Greenville, all of S.C., assignors to Springs Industries, Inc., Fort Mill, S.C.

Filed Jun. 28, 1985, Ser. No. 750,415

Int. Cl.^{4} D01F 11/00; D02G 3/36

textile fabrics therefrom, said yarns being characterized having a durable size coating which remains bound to the ya throughout wet finishing operations and subsequent use a which beneficially contributes to the physical and aesthetic roperties of the yarn, said method comprising

providing a supply package containing a plurality of textile yarns,

advancing the plurality of textile yarns from the supply package along a predetermined path of travel to and through a coating station and applying to the yarns an aqueous sizing composition comprising an aqueous self-crosslinking copolymer produced by emulsion polymerization of one or more ethylenically unsaturated monomers in the presence of a latent-crosslinking comonomer comprising an N-alkylolamide of an alpha, beta ethylenically unsaturated carboxylic acid having 3 to 10 carbon atoms,

directing the coated yarns from the coating station to and through a drying zone and heating the yarns to dry aqueous sizing composition and to crosslink and insolu lize the self-crosslinking copolymer, and

directing the thus coated yarns from the drying zone to a take-up station and winding the coated yarns on a take-up

ethod of producing a textile fabric formed of textile ving a size coating which is durably bound to the yarns, comprising applying to the yarns a coating of an aqueous sizing composition comprising an aqueous self-crosslinking copolymer produced by emulsion polymerization of one or more ethylenically unsaturated monomers in the presence of a latent-crosslinking comonomer comprising an N-alkylolamide of an alpha, beta ethylenically unsaturted carboxylic acid having 3 to 10 carbon atoms, drying and curing the sizing composition on the yarns to crosslink and insolubilize the aqueous self-crosslinking copolymer and to produce yarns having a size coating which remains durably bound to the yarns throughout wet finishing operations and subsequent use and which beneficially contributes to the physical and aesthetic properties of the yarns, forming the yarns into a fabric, and thereafter subjecting the fabric to wet finishing operations without prior removal of

---

HAIR-DYEING PREPARATIONS CONTAI
SUBSTANTIVE NITRODIPHENYLAMIN
DERIVATIVES

David Rose, Hilden; Edgar Lieske, Duesseldorf, an
Mask, Neuss, all of Fed. Rep. of Germany, assignor
kel Kommanditgesellschaft auf Aktien, Duesseldorf
of Germany

Filed Oct. 24, 1986, Ser. No. 922,610

Claims priority, application Fed. Rep. of Germany
1985, 3537765

Int. C

U.S. Cl. 8—429

1. A hair dyeing prepar
an anionic, nonionic or an
effective amount as a wetting agent and en
hair dye precursors present in a total quant
weight, a first substantive hair dye presen
out 0.01–5.0% by weight, and a second substanti
than according to formula I present in 0.
ight, all percentages based upon the total wei

(1) R
hyd
(2) two
other, hydr
hydroxyl o
dently of on
hydro
(3) one
ther
pendently of one a
C_{2-4} hydroxyalkyl,
methyl alk

PREPARATIONS CONT
NITRODIPHENYLAMINE DERIVATIVE HAIR

David Rose, Hilden; Edgar Lieske, Duesseldorf, and Norb
Mask, Neuss, all of Fed. Rep. of Germany, assignors to He
kel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. R
of Germany

Filed Oct. 24, 1986, Ser. No. 922,609

Claims priority, application Fed. Rep. of Germa
1985, 3537763

Int. Cl.^{4} A6

effective amount as a wetting agent and
hair dye precursors present in a total quan
weight, a first substantive hair dye presen
about 0.01–5.0% by weight, and a second substa
other than said first substantive hair dye present
weight, all percentages based upon the total

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bborough, both of Mass. (Donnie J. Keene, administra-
) Polaroid Corporation, Cambridge, Mass.

ation, forming
g said elongated
f said blanks to provid
said sheet carrying said

F MANUFACTURING A FUEL CELL ASSEMBLY

Etsushi Ueno; Noboru Segawa, and Yasuji Ogami, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 16, 1987, Ser. No. 26,190

y, application Japan, Mar. 17, 1986, 61-5712

Int. Cl.⁴ H01M 8/00

larizing the potential of at least one electrode in one

4,755,719

PORTABLE FUEL COMPOSITION

mi Saito, Tokyo, Japan, assignor to Shinagawa Fuel Co., Ltd., Tokyo, Japan

Filed Aug. 19, 1985, Ser. No. 766,583

Claims priority, application Japan, Aug. 23, 1984, 59-17560

15 Claims

r utilizing a composition comprising 10 par

of said composit

PROCESS FOR PRODUCING A HIGH CONCENTRATION COAL-WATER SLURRY

Hirofumi Kikkawa, Kure, Japan, assignor to Babcock-Hitachi Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 622,233, Jun. 19, 1984, abandoned. This application Mar. 9, 1987, Ser. No. 22,520

Claims priority, application Japan, May 6, 1983, 58-78352

Int. Cl.⁴ C10L 1/32

coal concentration, a low viscosity and a good st
which process comprises causing the slurry to h
composition of coal particles having partucl
range of 1,000 μm to 0.005 μm, so that
particles are divided into 8 fractions (F₁, I
tion having a parti elow
represents th 1,000
of the
rela-
ned in

4,756,721

HIGH SOLIDS CONTENT COAL-TAR MIXTURE

Giuseppe Correra, Taranto; Vittorio Errigo, Rome; Giansilvio Malagarini, Rome; Santi Patella, Rome, and Francesco Tammaro, Naples, all of Italy, assignors to Nuova Italsider SpA, Genoa, Italy

Filed Oct. 24, 1986, Ser. No. 927,225

Claims priority, application Italy, Oct. 24, 1985,

Int. Cl.⁴ C10L 7/00

S. Cl. 44—7.1 2 Claims

1. A suspension consisting essentially of particles in coal-tar, particles being selected from the gro
ke and having the following siz

Klaus Knop, Geldern; Kubiak, Herne, all of Fed. Rep. of Germany, assig M.A.N. GHH, Fed. Rep. of Germany

Division of Ser. No. 865,989, May 21, 1986. This appl Mar. 10, 1987, Ser. No. 24,012

Claims priority, application Fed. Rep. of Ge 1985, 3518760; Jan. 9, 1986, 3600432

a fluidized bed reactor for prod
t exchange means positioned wi
r for conveying a heat exchange
through and supplying heat to the fluidized bed
essentially allothermal gasification reaction, said
means having a heat exchange medium inlet
change medium outlet, feed mea
the reactor; a synthesis gas con

means having a steam inlet connected to said
plying steam to said reactor, heating means inclu
tion chamber and burner connected to said gas co
downstream of said purifying means for receiving and bu
a portion of the synthesis gas and for producing flue
serve as the heat exchange medium, said burner being
to said heat exchange medium inlet; bu
hamber means connected to said heat
tlet, and to said synthesis gas condui
purified synthesis gas to produc
gas from said heat exchange me
nbined flue gas outlet, a flue ga
ed to said combin
nected to said fl

4,756,72

SEPARATION OF HIGH PU

Shivaji Sircar, Wescosville, Pa., assign Chemicals, Inc., Allentown, Pa

Filed Mar. 4, 1987,

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ally the feed gas pressure a
removed from the process as
purity
iscontinuing p
her gas introdu

ater below a bot
vent means communicating with the tank above the maximum
level and arranged to communicate with the atmosphere exte-
riorally of the building so as to release gases in the tank above
said water level to atmosphere and so as to maintain
l tank at atmos

TRAPPING TUBE ADAPTED TO BE FITTED
OUTLET OF A GAS CHROMATOGRAPH AND DEVICE FOR SUPPORTING AND PRESENTING SUCH A TUBE

Jean-Paul Badey, Saint Didier au Mont d'Or; Jean-Roger Desmurs, Saint Symphorien dOzon, and Michel Dumont, Brignais, all of France, assignors to Rhone-Poulenc Recherches, Courbevoie Cedex, France

Filed Aug. 27, 1986, Ser. No. 900,880
priority, application France, Aug. 27, 198

f confinement of the condensatio
phase disposed downstream of sa

t H-zfor

aning, Victoria

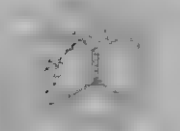
borders sealed by thermally resistan
fabric being of a translucent nature yet having interstices
between yarns measuring less than 1.25 millimeter, and
(b) dessicant granules confined within said container, said
granules containing a visibly distinctive moisture indicat
d granules bein
said fabric

4,756,727

HORIZONTALLY MOUNTED CYLINDRICAL
ENTED BORE PLEATED FILTER SYSTEM FOR ROTARY BROOM SWEEPERS

lin Howeth, 233 Chuck Wagon Trail, Fort Worth, Tex

9, 1985, Ser. No
Cl.⁴ B01D 46



orizontally extending f
panel connected to said draw bar
ully cylindrical filter element positioned about said draw bar and horizontally supported by said first partition panel, an upper, radially inner surface portion of said filter element bearing upon and circumferentially extending

l to said draw ba
and adjustably moving
toward engagement w
l filter element.

AIR FILTERING DEVICE

ln R. Conrad, Westlake Village, Calif., assignor t ackstrom, Dolton, Ill., a part interest

Filed Aug. 19, 1987, S
Int. Cl.⁴ B01

385 A 7 Claims

ble satellite air filtering device for use with a
sure machine having a primary air filter
mprises a horizontally disposed base frame having
k and side frame members, an upstanding fixed frame
ont frame member, said fixed frame having upper,
side frame members defining an area on one side
which a replaceable air filter element is removably
l, a secondary upstanding frame movably attached to
in spaced relatio
away from said
t, funnel mean

APPARATUS FOR SE

Erwin Brunnmair, Leonding, and Karl Faltejsek, Austria, assignors to Voest-Alpine Aktiengesell Stenstrasse, Austria

Filed May 28, 1986, Ser. No. 867,557
application Austria, May 28, 19

radially disposed deflecti
deflecting gases rotationa
side wall an annular dust
being loca
and being
and said d
therethrou
having an

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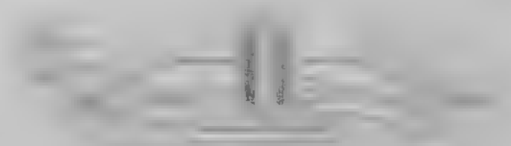
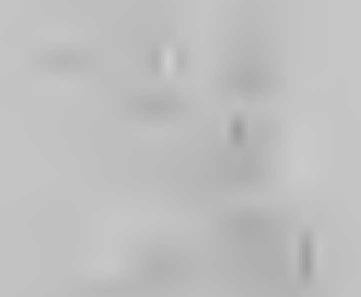
GLASS FIBERIZATION METHOD

Marie-Pierre Barthe, Gouvieux; Jean A. Battigelli, and Francois
Bouquet, both of Rantigny, all of France, assignors to Isover
Saint-Gobain, Paris La Défense, France
ontinuation of Ser. No. 539,728, Oct. 6, 1983, abandoned
hich is a continuation-in-part of Ser. No. 409,336,
82, Pat. No. 4,451,276, which is a continuation-in-p
. 461,834, Jan. 28, 1983, abandoned. This applicat
1986, Ser. No. 851,296
Claims priority, application European Pat. Off., Apr. 6, 198
83400678; Apr. 6, 1983, 83400699; France, Jul. 12, 1983, 8

term of this patent subs
2001, has been disclaime
Int. Cl.⁴ C03B





as through
pinner orifices in a multiplicity of streams, and attenuating
d glass streams
n burner provid
r gaseous blast adjacent the exterior of said peripheral wall
d gaseous blast having an elevated temperature contributing
the maintenance of the glass streams in attenuable condition
e sufficient to effect attenuation thereof, and wherein
al acceleration at the spinner wall, the diameter of the
e peripheral velocity of the spinner and the burner

ntrifugal acceleration

spinner diameter	150 mm to 1500 mm
peripheral velocity	50 m/s to 130 m/s
burner pressure	100 mm to 900 mm (water column

ND COMPOSITION FOR CR
GRADIENT-INDEX GLASS

sna Houde-Walter, and Duncan Moore, both of Rochester
N.Y., assignors to The University of Rochester, Rochester,
N.Y.
Filed Apr. 14, 1986, Ser. No. 851,178
Int. Cl.⁴ C03C 21/00
65—30.13

nge method for producing a gradient-index
body providing monovalent outdiffusing

exchanged with the monovalent cations of the glass with an amount of metal salt containing non-monovalent cations which do not exchange with the outdiffusing cations and which will complex therewith in a container to form a mixture, said amounts of salt in said mixture being sufficient to yield a delta substantially equal to a delta-n obtained when an amount of containing monovalent cations is used alone and/or ficient to yield a substantial depth of diffusion while cing poisoning of the mixture by the outdiffusing hereby enabling a large reduction in the amount of the nt metal salt employed for obtaining an equivalent ating said mixture until said mixture is molten to ng said glass on exchange f said glass and of said met fusing cations and yield th of diffusion.

4,756,734

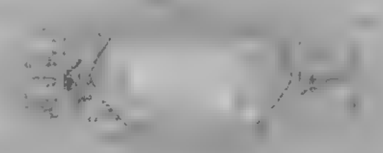
METHODS OF MAKING PLANAR LIGHTWAVE GUIDES

Ralf T. Kersten, Bremthal, and Wolfgang Siefert, Mainz, both of
Fed. Rep. of Germany, assignors to Schott Glaswerke, Mainz
Fed. Rep. of Germany
Filed Oct. 16, 1986, Ser. No. 919,402
Claims priority, application Fed. Rep. of Germa
536781; Sep. 6, 1986, 3630479
Int. Cl.⁴ C03P 8/04, C03C
65—31

one regions, and
eposing subsequent
with a doping medi

IN-LEHR PRESS BENDING

William P. Cathers, Shaler Township, Allegheny
Thomas J. Reese, Buffalo Township, Butler Co
B. Weiss, Lower Burrel, all of Pa., assignors t
, Pittsburgh, P
iled Jul. 24



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vith a
rtion

aid outline mold such

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DISTRIBUTING G
ACTURING MA
gland, assignor

scoops being mounted on each gea
ing through the gear, each gear t
about the aforementioned vertical axis of the scoop, an
ed gear through which the
meshed with the externally-

ATUS FOR PRODUCING OPTICAL ELEMENT
ra Yoshimura; Masaaki Yokota, both of Yokohama, Kiyoshi Yamamoto, Yono; Toru Aruga, Yokohama, and Isamu Shigyo, Chiba, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
iled Dec. 1, 1986,
, application Ja
Int. Cl.⁴ C0

ans for heating said optical el
g means for pressing the heated

J. Detroit, Schofield, Wis., ass
Rothschild, Wis.
uation-in-part of Ser. No. 752,89
application Nov. 21, 1986, Ser. No. 933,765
tion of the term of this patent subsequent to Ja
2005, has been disclaimed
5C 9/00, 11/00

rylonitrile to lignosulfor

4,756,739
PYRIDINE DERIVATIVES AND THE N-OXIDE THEREOF, AND THE USE THEREOF AS NTERMEDIATES FOR THE SYNTHESIS OF PLA PROTECTING AGENTS

ndreas Fuss, Karlstein, and Volker Koch, Kelkheim, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesell chaft, Frankfurt am Main, Fed. Rep. of German
Filed Dec. 19, 1986, Ser. No. 944,547
Claims priority, application Fed. Rep. of Germa
85, 3545570
Int. Cl.⁴ A01N 43/40; C07F 9/28; C07D 213/60, 213/62
S. Cl. 71—87
4 Claim

both be halogenated,
tuted by (C_1-C_6)alk
ycarbonyl, halo$(C_1$
$(C_1-C_6$-alkyl)carbo
notes phosphoryl or

tioned may be

NT COMPS
RIDAZINE
Alto, and Lawrenc
both of Calif., assignors to Lafarge Coppee, Paris,
ivision of Ser. No. 532,020, Sep. 14, 1983, Pat. No
This application May 14, 1986, Ser. No. 86

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) HERBICIDAL COMPOSITI
g Hofer; Volker Mues, all of Wupp
s Eue, Leverkusen, and Robert R. Schmidt, Cologne, al
d. Rep. of Germany, assignors to Bayer Aktiengesell-
ft, Leverkusen, Fed. Rep. of Germany
Division of Ser. No. 526,518, Aug. 26, 1983, Pat. No. 4,645,52
which is a continuation of Ser. No. 132,055, Mar. 20, 1
abandoned. This application Jan. 15, 1986, Ser. No. 81

H_2OCH_3 or Cl

yanoalkyl, meth
alkenyl, or

ORTHO-HETEROCYCLI
ENESULFONAMIDES
Thompson, Wilmington, Del., assignor to E. I. Du Po
emours and Company, Wilmington, Del.
tinuation-in-part of Ser. No. 671,852, Nov. 15, 19

CIDAL COMPO
ouichi Morita, Toyonaka, and Ryo Yo
of Japan, assignors to Sumitomo Chem

Filed Nov. 12, 1985, Ser. No
ity, application Japan, No

tsburgh, Pa.

Z-1, and Y

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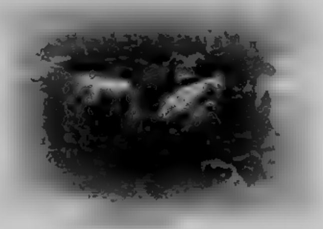
…LITE COLEMAN…E AND OF…
…OWLITE MINERALS
…rdo, Monterrey, Mexico, assignor to Materias… Magdalena, S.A.DE C. V., Monterrey, Mexico
…iled Jan. 29, 1987, Ser. No. 8,5…
…riority, application Mexico, Jan. 29, 1986, 139…

…n a suspension with insoluble solids; (b) sepa… …n from the insoluble solids of the suspension;

…1.86, Ser. No…



GLASSES

Robert C. Haushalter, Clinton, N.J., assignor to The United States of America as represented by the Department of Energy, Washington, D.C.

Division of Ser. No. 700,845, Feb. 11, 1985, Pat. No. 4,626,29… This application Jul. 24, 1986, Ser. No. 889,…

Int. Cl.⁴ C22C 38/00, 19/07

…pounds M_1X and M_2Y in a polar organic solvent, wherein M_1 is at least one transition metal having an atomic number in the range of 24–30, 45–48 and 77–80, M_2 is at least one metal selected from the group consisting of Sn, Pb, As, Sb, P, Te, Se and mixtures thereof, and XY is soluble in the solvent, and …rming $(M_1)_a(M_2)_b$ as said precipitate, the integers "a" and …ochiometric balance in…

4,756,748

…OR THE SMELTING RE…
…SMELTABLE MATERIALS

…ei-Kao Lu, and Czeslaw Bryk, both of Hamilton, Canada, assignors to Canadian Patents and Development Limited—Société Canadienne des Brevets et d'Exploitation Limitée, Ottawa, Canada

Continuation-in-part of Ser. No. 685,501, Dec… abandoned. This application Apr. 2, 1987, Se…

…al being of avai…

…charge within the…

…on in the said pool

4,756,749

…ROL OF CON…
…CONDITIONS

Alberto Prattoni, Pomezia, and Pietro Tolve, Rome, both of Italy, assignors to Centro Sviluppo Materiali S.p.A., Rome, Italy

Filed Dec. 8, 1986, Ser. No. 939,40…

Claims priority, application Italy, Dec. 6, 1985, 48890 A/85

1. In a process of continuous casting of liqu… tundish having a plurality of casting holes thr… liquid steel moves downwardly into a plurality of stran… liquid steel being discharged into the tundish from a la… the liquid steel moving in opposite directions towa… adjacent said holes from at least one n… from which liquid steel moves in diff… different said holes; the improvement… the liquid steel to the heating effect of… one said node

4,756,750

…E DIRECT RE…
…ORE…

…rthur D. Bixler, Washington Township, Lehigh County; Tarun D. Vakil, Macungie, and Shoou-I Wang, Allentown, all of Pa., assignors to Air Products and C…

Filed Apr. 27, 198…

Int. Cl.⁴…

…ified natural gas… …atural gas stream

…e of carbon,

…h the second essential… …d an oxygen stream in… …rmer thereby producing a… having an "R" value of greater th… concentration of at least 80 mole p…

(e) partially oxidizing at least a portion… carbon stream with an oxygen stream ther… soot and a soot generator off-gas stream;

(f) combining the secondary reformer efflue… …e soot generator… …e shaft furnace…

…010 Meadowbr…
…d Mar. 25, 198…

…pany, Farmington Hil…
…iled Nov…

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INUM MATRIX
ISITES AND METHOD FOR MAKING SAME
o Miura, Oyamashi, Japan, assignor to Showa Alumi
Kabushiki Kaisha, Sakaishi, Japan

[illegible]

alloy compo-
material an
the glass coated ce-

2220 Laketon Rd., Pittsburgh,

ontinuation-in-part of Ser. No. 913,363, Sep. 30, 1986, Pat. No
,668,294, which is a continuation-in-part of Ser. No. 745,356,
Jun. 14, 1985, Pat. No. 4,654,080. This application May 21
1987, Ser. No. 52,078
The portion of the term of this patent subsequent to May 2
2004, has been disclaimed
Int. Cl.⁴ C09D 5/14

mone oil's odor

4,756,756
THICK-LAYER, HYBRID E
PRINTED CIRCUITS
Robert Cassat, Ternay, France, assignor to
Specialites Chimiques, Courbevoie, France
Division of Ser. No. 441,153, Nov. 12, 1982, Pat No. 4,51 2
This application Feb. 26, 1985, Ser. No. 705,726
Claims priority, application France, Nov. 17, 1981, 81 216
Int. Cl.⁴ C09D 11/10

potentially co

[illegible]

4,756,757
RECORDING LIQUID
esaburo Haruta, Funabashi; Masatsune Kobayashi, and
kuya Ohta, both of Yokohama, all of Japan, assignors
Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 763,878, Aug. 8, 1985, Pat. No
4,655,835, which is a continuation of Ser. No. 490,732, May 2,
1983, abandoned. This application Dec. 5, 1986, Ser. No. 938,447
Claims priority, application Japan, Mar. 5, 1983, 58-3525
Int. Cl.⁴ C09D 11/02
S. Cl. 106—20 19 Claims

[illegible]

THERMOCHROMIC JET INK
ruce A. Lent, Oak Park, and Paul N. Elue, Chicago, bot
Ill., assignors to Videojet Systems International, Inc.
Grove Village, Ill.
Filed Apr. 24, 1987, S
Int. Cl.⁴ C09

[illegible]

4,756,759
PRINTING INK IN DRY, POWDERED FORM
obert Amon, and Haim Bretler, both of Lausanne, Switzer
assignors to SICPA Holding S.A., Glarus, Switzerland
Continuation-in-part of Ser. No. 698,683, Feb. 5, 1985
abandoned. This application Mar. 17, 1987, Ser. No. 27
Int. Cl.⁴ C09D 11/14
106—23

flexographic
sary amount

meters and comp
ving a particle

[illegible]

N.J.,

[illegible]

eep Cape Providence, and Ernst Konick, Kle
Cape Providence, both of South Africa, assignors

[illegible]

MAGNESIUM PHOSPHATE
Ed Weill, Baltimore, and Joseph B
assignors to American Stone-M

[illegible]

Oregon, Ill., assig

ontinuation-in-part of S
abandoned. This applicat

[illegible]

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INGREDIENT

[illegible] Jeresas, Borex-Vaud, and Alistair Y. Smith, Geneva, [illegible] of Switzerland, assignors to Firmenich SA, Geneva, [illegible]

[illegible] Filed Feb. 26, 1987, Ser. No [illegible]

[illegible] priority, application Switzerland [illegible]

[illegible]

ELY-CONDUCTIVE MATERIALS

[illegible] Andover, Mass., assignor to AVCO Research [illegible] Laboratory, Inc., Everett, Mass.

Continuation-in part of [illegible]

[illegible] laser beam pulses, energy greater than [illegible] less than about one hundred joules per [illegible]

[illegible] substantially adversely a[illegible] of said substrate, said p[illegible] sequential portion [illegible] whereby at least [illegible]

rate at which said number of pulses is delivered to each sequential portion, the predetermined rate at which said number of pulses is delivered to each sequential portion substantially defines a fraction of the said pulse repetition rate, and said laser beam is caused to sequentially travel over a number of portions substantially equal to the reciprocal of said fraction and return to the first of such number of portions until said plurality of pulses are delivered to [illegible]

METHOD OF CLEANING AND CONDITIONING [illegible] SURFACES

John H. Thrower, Charlotte, N.C., assignor to Hertron International, Inc., Charlotte, N.C.

Filed May 7, 1987, Ser. No. 46,[illegible]

Int. Cl.⁴ B08B 3/08

[illegible] cleaning, and conditioni[illegible] steps of, applying a fi[illegible] sulfate, an abrasive, a th[illegible] to be treated, remov[illegible] a second mixture consisting [illegible] the group consisting of the [illegible] monocarboxylic aliphatic [illegible] a wetting agen[illegible] [illegible]ving the secon[illegible] [illegible]le film of calciu[illegible] of the marble [illegible]

4,756,767

[illegible] REMOVING SEALANT MATE[illegible] WINDOW GLAZING PANEL

Istvan H. Soni, Elkhart, Ind.; Kenneth D. Kloosterman, E[illegible] wardsburg, Ind., and Denzil Abney, Fulton, Ky., assignors [illegible] Excel Industries, Inc., Elkhart, Ind.

Continuation-in-part of Ser. No. 853,039, Apr. 17, 1986, abandoned. This application May 8, 1987, Ser. No. 47,111

[illegible] ng a gasket seal f[illegible] surface, said seal being adhered [illegible] said method comprising the ster[illegible] [illegible]ting a normally waxy polymer[illegible]

4,756,768

METHOD FOR THE CHEMICAL DECONTA[illegible] OF METALLIC PARTS OF A NUCLEAR REACTOR

Horst-Otto Bertholdt, Erlangen; Hans Hirning, Grossenseebach; Rudolf Papesch, Erlangen, and Hubert Stamm, Nuremberg, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Continuation of Ser. No. 722,297, Apr. 11, 1985, abandoned. This application Dec. 1, 1986, Ser. No. 936,981

Claims priority, application Fed. Rep. of Germany, Apr. 1[illegible]

[illegible] ion of perman[illegible] metallic surface [illegible] demineralized [illegible]

[illegible] ng an aqueous [illegible] metallic surfa[illegible]

4,756,769

METHOD FOR CLEANING WITH HIGH PRESSURE AN EVAPORATOR AND DEVICE USED THEREBY

Johannes Booij, Rhoon, Netherlands, assignor to [illegible] tal Nuclear Services S.A., [illegible]

Continuation of Ser. No. 653,852, Sep. 24, 1984, abandoned. This application Jan. 5, 1987, Ser. No. 4,245

Claims priority, application Belgium, Jan. 27, 1984, 2/60523

Int. Cl.⁴ B08B 9/00

[illegible] an upstanding round closed vessel,

at least two substantially horizontal perforated partitions which divide said vessel into an uppermost space, at least one middle space, and a lowermost space,

a supply line for the liquid to be evaporated wh[illegible] on the uppermost space,

an access to said uppermost space which acces[illegible] in the vessel wall and is closable with a cover

an access to said middle space which access i[illegible] the vessel wall and is closable with a cover

a discharge line for the vapour and liquid, whi[illegible] on the lowermost space,

[illegible] outlet which is provided in the vessel bottom, and [illegible] access to said lowermost space which access is provided in the vessel botom and is closable with a cover, which method comprises first cleaning the uppermost space, then the middle space, and finally the lower most space, whereby

[illegible] r cleaning the uppermost space, [illegible] cover of the access to said space is [illegible] through said access a high-pressure lan[illegible] with a spray head comprising a body [illegible] lance axis and spray arms rotatably m[illegible] the spray head [illegible]

said spray head provided cleaning the upperm[illegible] brought through said access in the lowermost [illegible] insuring that the access is sealed leak-fr[illegible] [illegible]tance,

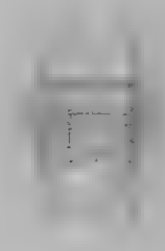
the spray head is successively b[illegible] in the lowermost space, and

at least each time the spray head is held in a f[illegible] liquid with a pressure lying between 35 an[illegible] sprayed through the spray head, causing the [illegible]tion of the body of the head and of the spra[illegible]

(d) during the cleaning of each one of said spa[illegible] ing liquid is [illegible] discharged [illegible]

METHOD

[illegible] J. Weems, Chevy Chase, Md., and [illegible] Cabot, Ark., assignors to Arkansas Power and [illegible] pany, Little Rock, Ark.



of vertically spaced apart gener[illegible] structures, said method comprising [illegible] providing a working column of [illegible] said vessel and initially establi[illegible] below the target internal str[illegible] [illegible]ly slapped and clean[illegible] [illegible]dically introduc[illegible] into the botton [illegible]

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SEALING LAYERS FOR ANOD
LUMINUM SURFACES

odalla; Winfried Kirchhoff, both of Duesseldorf, and Hans J. Goehausen, Langenfeld, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany

nuation of Ser. No. 811,964, Dec. 20, 1985, abandoned. This application Apr. 14, 1987, Ser. No. 38,480

s, cold-sealed, anodized
i comprising the treat
temperature of about 15° 70° C. with
on consisting essentially of nickel ion

IC OXIDE
UM ARTICLE

, Sestr, and Dan Fern, Kingston, Canan International Limited, Montreal,

an, Telford, and Howard D. Brodbeck, Berwyn
assignors to MG Industries, Valley Forge, Pa

jecting the second, non-noble gas into t

4,756,774

CASE HARDENING AND CORROSION INHIBITION PROCESS

Patrick L. Fox, Grosse Point Park, Mich., assi Treating Co., Detroit, Mich.

Continuation-in-part of Ser. No. 646,564, Sep. 4, 1984, abandoned. This application Feb. 28, 1986, Ser. No. 834,90

Int. Cl.⁴ C21D 1/74

19 Clai

proving the wear characteristics and

s atmosphere into the bed, the
e selected from the group con-
nia, nitrogen and natural gas while
emperature between about 750° and

pieces with a second
nitrogen and water
nmersed in a fluidized bed of
a temperature between ab
, and
metal piece in con
ere for a time per
t 90 minutes, a

Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 508,266, Jun. 24, 1983, abandoned, which is a continuation-in-part of Ser. No. 414,936, s application Oct. 26, 1983, Ser. No. 544,728

Int. Cl.⁴ H01F 7/02

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tium and copp

nt of the magnet, the magnet
ity of at least about 1,000

RODUCTION OF AN
THE EXPLOSIVE

Randburg; Carl H. Lubbe, J
nette Swartz, Bedfordview, all of South Africa, a
AECI Limited, Johannesburg, South Africa

Filed Jul. 7, 1987, Ser. No. 70,721

4,756,777

IS-2,2,2-FLUORODINITROET
FLUORODINITRO-2-PROPO

William M. Koppes, Adelphi, and Ho Spring, both of Md., assignors to Th ca as represent by the Secre

TARGETS AG
WEAPONS HAVING IR DETECTOR

Victor R. Deitz, Chevy Case, Md.; Joseph P. R Mary's, Pa., and Neldon L. Jarvis, Woodbridg ors to The United States of America as Secretary of the Navy, Washington, D.

Filed Dec. 4, 1980, Ser. No

AMMONIUM NITRATE

North Vancouver, Canada, a
th York, Canada

Filed Sep. 21, 1987, S
riority, application Cana

Int. Cl.⁴ D

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4,756,
EDLE AND METHOD
TURING THE SAME
, Japan, assignor to Terumo Kabushi
No. 836,980, Mar. 5, 1986, Pat. No. 4,675,01
application Apr. 20, 1987, S

pet ent filter or
water-repellent filter layer to
ercing section, and
stepped portion while pressing
reto at such a temperature as to thermal
nforcement layer and annular stepped po
elt said water-repellent filter layer, ther
to said annu
ery thereof

MENT TO A POWER SOURCE
Hiawatha Dr., Glendale, Calif. 91

adjacent the connection,
applying a corrosion-resistant thermoplastic material
exterior of the heating element along at least a portion
thereof adjacent the connection;
placing a sleeve of corrosion-resistant thermoplastic material
about the connection so it overlaps at least p
lead wire and the heating element,

moplastic materials surrounding the connec

4,756,782
METHOD FOR RETREADING TIRES
Theophilus K. Seiberling, 255 N. Portage Path, #503, Akron
Ohio 44303
Filed May 6, 1986, Ser. No. 860,32

er to be placed between
he improvement which
prises partia
r a part of said
layer by ele
a before assembl
tread and cushion gum layer

METHOD FOR
INS
McShane, North Hollywood, Calif., assign
Research and Chemical Corp., Glendale, Calif.
Filed Nov. 14, 1986, Ser. No. 930,78
Int. Cl.⁴ B32B 31/06; C03C 27/10; E06B 3/
U.S. Cl. 156—104 10 Claims
1. In a method for substantially preventing the escape of
a chamber defined by at
nsparent panes in space

polymer composition between each of said inner edge
surface portions and said spacing means to form a seal
said liquid polymer composition consisting essentially of
from about 90 mole percent to about 25 mole percent of
another mercaptan terminated disulfide polymer of the
formula HS $(RSS)_mR'SH$,
from about 10 mole percent to ab
ethyl formal mercaptan terminate
the formula $HS(RSS)_nRSH$, wherein n

nd the value of
ercaptan termi
ptan terminated
another mercaptan terminated disulfide polymer ha
average molecular weight of between about 100
about 4000, and
a curing eff
liquid polym
substantially

on gas and flushing

METHOD OF MAKING PIPE-JOINT GASKET
Lawrence S. Jones, Hueytown; George F. Rhodes, Leeds, both of
Ala., and Gene F. Fornaro, Raleigh, N.C., assignors to United
States Pipe and Foundry Company, Birmingham, Ala.
Filed Jun. 2, 1986, Ser. No. 869,493
Int. Cl.⁴ B29C 65/02; B32B 31/30; B65H 69/

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of
(4) cu

Eberhard König, Floersheim; Robert Zöllner, Lev
Uwe F. Gronemeier, Knerton, all of Fed. Rep
assignors to Bayer Aktiengesellschaft, Leverk
of Germany
Filed Nov. 24, 1986
Claims priority, application Fe
1985, 3543120

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at least one org

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which is a con
abandoned, which is a division of Ser. No. 5
Pat. No. 4,508,113. This application Nov
933,496

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y, said first ply
cture being ther
ture than said ad

ng an assembl

Heights, Mich., and David J. Dunn,
assignors to Loctite Corporation, Newington,

of Ser. No. 1986, Pat. No
No. 118,4

LINE WINDER WITH TAKE-UP WEB

R. Bedell, Madison; Naim S. Hemmat, Mendham, and Paul
Jeges, Blairstown, all of N.J., assignors to Allied-Signal Inc.,
Morris Township, Morris County, N.J.
rision of Ser. No. 695,148, Jan. 25, 1985, Pat. No. 4,644,
This application Nov. 12, 1986, Ser. No. 929,465

surface and means
al thereon which

cutting b take

with said solidified strip and casting surface,

reel drive means for rotating said reel to pr

4,756,789
TOOL FOR APPLYING GLASS INSULATING STRIPS
John C. Kolff, Abbotsford, Canada, assignor to Peak Distribut-
ing Limited, Abbotsford, Canada
Filed Jun. 24, 1987
priority, application Ca

to said body and mounted
de means for
guiding the placement of said strip on said planar surface
wer surface of said body and said strip guide means
assageway parallel to said guiding edge of said
eans and opening downwardly and open at
hereby said strip may pass between said
of said body and said upper planar surface,
means comprising two parallel roller means
ce between them having a width slightly
th of said strip, said roller means being
about axes perpendicular to said
and parallel to said perpendicular

4,756,790
CONNECTING A WEB TO
DING ROLL IN CONTINUOUS REELING
APPARATUS
Kinnunen, Jarvenpaa, Finland, assig

g members to

Charles D'Angelo,
and Sergej-Tomislav Buljan, Acton, all of Mass.
GTE Laboratories Incorporated, Waltham, Mass
Filed Aug. 25, 1986, Ser. No. 89

THIN FILM
Fujita, Ushiku, and Masaaki Kaneyama,
both of Japan, assignors to Mitsubishi Monsant
Co., Ltd. and Mitsubishi Chemical Inds. Ltd., bot

Filed Sep. 5, 1986, Ser. No. 904,

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at least one groove on

assignor to The United States
the Secretary of the Navy.

a second pl. se

4,756,795

FABRICATION PROCESS W
OVERPLATE

Peter Bakos; Lawrence M. Baldauf, and Duane T. Napp, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 19

Int. Cl.⁴ C23F 1/02, B44

oved process for making circuitry pattern

strate having a pattern
rethrough, and subsequently copper

low stress nickel to a thickness in the

pattern on the n

Yuichi Saitoh, Urawa, Japan, assignor to Mitsubishi Kinzoku Kabushiki Kaisha and Japan Silicon Co., Ltd., both of Tokyo, Japan

Filed Oct. 10, 1986, Ser. No. 917,726

Claims priority, application Japan, Oct. 23, 1985, 60-236

Int. Cl.⁴ C03B 9/46

S. Cl. 264—162 5 Claims

1. A method for producing two or more wafers from an elongated stock whose length is many times greater than the thickness of each wafer, comprising the steps of

(a) providing an elongated stock having an end face with a warped surface due to a pr

(b) milling said one end face

reduce the warp of the surface to form a flat end su

ransversely through said elongated stock a

face, using said first flat surfa

align said second flat surface,

afer with two flat surfaces

MULTIPLE EFFECT EVAPORATOR WITH AN EVAPORATIVE CONDENSER AS A LIQUID EVAPORATION EFFECT

Carl Elmore, and Timothy Carter, both of Glens Falls, N assignors to Kamyr, Inc., Glens Falls, N.Y.

Filed Oct. 20, 1986, Ser. No. 920,617

t. Cl.⁴ B01D 1/26

1. A multiple effect evaporat

process liquid comprising.

(a) a plurality of evaporator effects arranged in series, each effect including a process liquid inlet and a process liquid outlet; a heating fluid inlet and heating fluid outlet;

(b) heat exchange means in each effect for passing said process liquid in heat exchange relationship with heating fluid for evaporating water out of said process liquid; and wherein evaporated water from one effect serves as heating fluid for an adjacent effect; and

(c) an evaporative condenser provided with liquid inlet means for receiving process liquid from one of said evaporator effects, and liquid outlet means for transmitting said process liquid to another of said evaporator effects; and means for receiving heating fluid vapor and for passing said heating fluid vapor in heat exchange relationship with cooled process liquid in a cooling circuit, for condensing said heating fluid vapor

SS FOR BLEACHING A MECHANICAL PULP WITH HYDROGEN PEROXIDE

que Lachenal, 1, place de la Commune, 38130 Echirolles; Claude Bourne, 11, allée des Fresnes, and Christian de Choudens, Les Tilleuls, both of 38610 Gieres, all of France

Continuation of Ser. No. 745,007, Jun. 14, 1985, abandoned

This application Apr. 16, 1987, Ser. No. 39,794

Claims priority, application France, Jun. 15, 1984, 84 0

Int. Cl.⁴ D21C 9/12, 9/16

4,756,799

METHOD OF MANUFACTURING BLEACHE CHEMIMECHANICAL AND SEMICH PULP BY MEANS OF A ONE-STAGE PROCESS

Goran Bengtsson, Liljegangen 5, S-44005 Nodinge; Rune Simonson, Sotenasvagen 64, S-43364 Partille, and Roland Agnemo, Ornskoldsvik, all of Sweden, assignors to Eka AB, Swe Goran Bengtsson, Nodinge and Rune Simonson, Partill of, Sweden

Filed Mar. 12, 1986, Ser. No. 839,022

Claims priority, application Sweden, M

Int. Cl.⁴ D21B 1/02, 1/34, D21

1. In a method lignocellulosic m impregnating the same with alkali and peroxide, and quently draining, pre-heating, refining and bleaching said terial; the improvement in which said impregnating is effe with a solution which contains alkali and peroxide in a w ratio at least equal to 2.5:1 for a period of 2 to 20 minute said draining is effected for 5 to 60 minutes at a temper

4,756,80

METHOD FOR PRODUCING

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action mixture is in ab ut 0.1

inuing the aeration during the adding of the sulfite ions, the source of sulfite ions being added ch that the number of molecules of oxygen eaction mixture equals des of sulfite ions dissol by salts of monoper bleach the pulp

THOD AND A COMBINATI
ENTS TO BE USED IN TH

n, Kirkkonummi; Lars Petander, Vaasa, and irta, Muhos, all of Finland, assignors to Kemira lsinki, Finland

ation of Ser. No. 688 799, Jan. 4, 1986, abandoned. This application Oct. 24, 1986, Ser. No. 922,717

lication Finland, Jan. 11, 1984 840093F

l.⁴ D21H 3/28; 3/78

1 Clai

hed 3 02; C02F 1/14

a heat targets on adja

liquid, and

conduit means for conducting the distilled liquid away fro he condensation means, the conduit means including a peline through the undistilled liquid in at least one of the

ALCOHOL BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. Third Ave., Bozeman, Mont. 59715

Filed Oct. 18, 1985, Ser. No. 788,978

The portion of the term of this patent subsequent to Dec. 1, 2004,

Int. Cl.⁴ B01D 3/40; C07C 29/84

203—51 9 Claims

A method for recovering 2-butanol from a mixture of 2-butanol and t-amyl alcohol which comprises distilling a mixture of 2-butanol and t-amyl alcohol in a rectification column in the presence of about one to two parts of extractive agent per part of 2-butanol - t-amyl alcohol mixture, recovering 2-butanol as overhead product and obtaining the extractive agent and t-amyl alcohol from the stillpot, the extractive agent comprises at least a benzoate containing from eight to fourteen carbon atoms

4,756,804

METHOD OF DETECTING HYDROGEN CYANIDE GAS IN A GASEOUS OR LIQUID SAMPLE

John N. Driscoll, Wellesley Hills, and Edwards S. Atwood, Natick, both of Mass., assignors to HNU Systems, Inc., Newton, Mass.

Division of Ser. No. 810,412, Dec. 18, 1985, Pat. No. 4,659,434, which is a division of Ser. No. 726,957, Aug. 26, 1985, abandoned, and a continuation of Ser. No. 526,914, Aug. 26, 1983, abandoned. This application Feb. 12, 1987, Ser. No. 13,952

ody and within said body a pH e electrode, a liquid electrolyte les, and a membrane permeable to said to said detection electrode and arranged trodes and said electrolyte from said sam electrolyte being an aqueous buffer solution H value of between 8.3–9.8 and being initially t capable of dissociating to form in said electro- , said testing comprising measuring a change in po- etween said reference electrode and said pH detection

ecting HCN gas in a gaseous or liquid nprising testing said sample in an elec- ing a body and within said body a pH eference electrode, a liquid electrolyte les, and a membrane permeable to sai said detection electrode and arranged les and said electrolyte from said sam-

ple, said liquid electrolyte being an aqueous buffer solution buffered to a pH value of between 9.0–11.6 and being initially essentially free of any salt capable of dissociating to form in said electrolyte CN−, said electrolyte containing, at a concentration of between 0.5% and 70%, v/v, a water miscible solvent having a dielectric constant of at least 10 and being non-interfering with said detection and reference electrodes, said testing comprising measuring a change in potential between said reference electrode and said pH detection electrode

4,756,805

TREATMENT OF GALVANIZED STEEL

Haruyoshi Terada, Tokyo; Akimitsu Fukuda, Chiba, and Yohji Ono, Tokyo, all of Japan, assignors to Nihon Parkerizing Co., Ltd., Tokyo, Japan

Filed Oct. 14, 1986, Ser. No. 918,409

Claims priority, application Japan, Nov. 1, 1985, 60-244063

Int. Cl.⁴ C25D 11/38

U.S. Cl. 204—35.1 4 Clai

4,756,806

HYBRID THERMOELECTROCHEMICAL SYNTHESIS OF GASEOUS FUELS FROM WATER AND CARBON DIOXIDE

mes K. Krist, and Robert V. Serauskas, both of Lincolnshire, Ill., assignors to Gas Research Institute, Chicago, Ill.

Filed Jun. 18, 1987, Ser. No. 64,997

Int. Cl.⁴ C25C 1/00

consisting of water, carbon di of producing carbon monoxide

cycle, and

recycling said meth

oxidizer to said therm

4,756,807

CHEMICALLY MODIFIED ELECTRODES FOR CATALYTIC REDUCTION OF CO_2

Thomas J. Meyer; Terrence R. O'Toole, both of Chapel Hill, N.C.; Lawrence D. Margerum, Los Angeles; T. David Westmoreland, San Mateo, both of Calif.; William J. Vining, Racine, Wis.; Royce W. Murray, and B. Patrick Sullivan, both of Chapel Hill, N.C., assignors to Gas Research Institute, Chi

Division of Ser. No. 917,383, Oct. 9, 1986, Pa This application Oct. 14, 1987, Ser. No

TRIC TRANSDUCER AND PI PREPARATION THEREOF

Kazuaki Utsumi; Takeshi Inoue, and Sadayuki Takahas Tokyo, Japan, assignors to NEC Corporation, Toky

Filed Jun. 2, 1986, Ser. No. 869,633

Claims priority, application Japan, M Jun. 4, 1985, 60-121037; Jun. 4, 1985, 6

Int. Cl.⁴ C25D 13

U.S. Cl. 204—180.2

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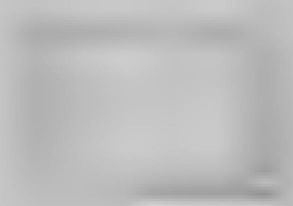
kness
he first matching layer but corre-
remaining length of said quarter-
the total thickness of the first and
ching layers is equal to said

DUCTING ELECTROPHORESIS
AND TRANSFER

heaton; Michael T. Elliott, Gaithersburg, and
Morgan, Hyattsville, all of Md., assignors to
racor, Inc., Gaithersburg, Md.
Continuation-in-part of Ser. No. 825,931, Feb. 4, 1986, Pat. No
. This application Sep. 25, 1986, Ser. No. 911,467



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ls formed in the
in electrophoresi
tential through
mples in response to the
gel to depurination sol
lenaturation transfer

Intec, Milpitas

sing said laye
and
plying an RF ex
about 1 MHz to said substrate so that said RF excitation induces a bias voltage on said substrate with respect to said plasma whereby ions from said plasma will bombard said layer and mobilize said substance on said layer during said depositing step

20. Apparatus for depositing and planarizing a layer substance on a surface of a s

aid substrate,
ng said substance on said
a gaseous phase to thereby form a layer of said substance
(c) means for providing a plasma in proximity to said surface during operation of said depositing means, and
(d) substrate RF power means for applying RF excitation to said substrate at a frequency of about 5 kHz to about 1 MHz.

4,756,811

METHOD FOR MANUFACTURING BUBBLE MODE OPTICAL RECORDING MEDIA

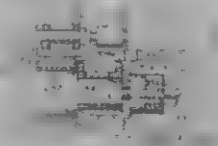
ishikatsu Takeoka, Kawasaki; Nobuaki Yasuda, Zushi, and Norio Ozawa, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 30, 1986, Ser. No. 913,752
Claims priority, application Japan, Sep. 30, 1985, 60-2145
p. 30, 1985, 60-214521
Int. Cl.⁴

sphere comprising a methane series hydrocarbon, hydrogen and oxygen which are used to constitute said organic clusters and said matrix, thus performing plasma sputtering, wherein organic materials required to form said recording layer are introduced in gaseous phase into said chamber, and wherein a volume ratio of the methane series hydrocarbon to oxygen in the low-pressure gaseous atmosphere is set to be 95/5 to 50/50, and a volume ratio
f the methane series hydrocarbon and hyd
set to be 90/10 to 50/50, wherel
s deposited on said substrate
f organic clusters, thei
ribution of said organi

4,756,812

ELECTRICAL CONNECTOR AND CLAMP MECHANISM FOR ECM WORKPART SHAFT

Edmund R. Hinman, Monroe, Conn., assignor to Airfoil Textron Inc., Lima, Ohio
Filed Apr. 13, 1987, Ser
Int. Cl.⁴ B23H 3/0



chemical machine for machining a workpart as
prising a rotatable shaft means on which the
arried in elec
rotating the worl
aft means to indexed positions, electri
isposed on the shaft means for axial mov
position where the coupling means and
ectrically conductive relation, means for mov
g means to said position when said shaft means
position and away from said position to permit
f said shaft means to another indexed
n of said coupling means thereon, and
connecting the coupling mean
ower to make

4,756,813

SELF-BAKING ELECTRODE

Stanley, 2790 Lynn Dr., Frederick, Md. 21701
Filed Oct. 24, 1986, Ser. No. 925

for containing and ad
paste for tr
at least partially

laude Van Voren, and Christian Jonville, both
Maurienne, France, assignors to Aluminium
France

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artin A. Hutchinson, Santa

said entrance opening

ELECTRODEPOSITION OF HI
RON

Vernon H. Liao, Edina, and Charles H. Tolman, Bl
both of Minn., assignors to Magnetic Peripherals

Filed May 29, 1987, Ser. No. 56,089
Int. Cl.⁴ C25D 3/56

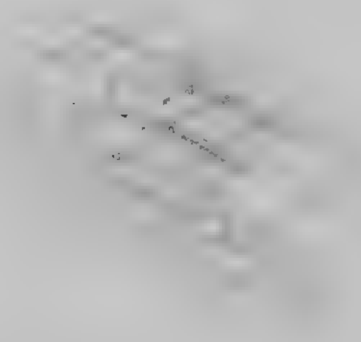
es using as the plating bath

in a concentration substantially

sium sulfate in a concentration
l and 0.5 grams per liter, wherein

STRUCTURES

Roy L. Hicks, Lake Jackson, Tex., assign
cal Company, Midl
Filed A



uctures, the improvement
ngated slider member disposed beneath all of the hanger members of the plate-type structures, slidably mounted on the side rails and releasably fastened to the mobile platen such that at least one or more plate-type structures can be shifted along the axis of the side rails when the mobile platen is moved.

The apparatus of claim 1 wherein the plate-type struct
ctrolytic cell frame member usef

apparatus of claim 8 wherein the
lytic cell frame st

A METHOD FOR THE PRODUCTION OF A CARBON FIBER PRECURSOR

Siegfried Peter, Uttenreuth-Weher; Herbert Beneke, Cast Rauxel; Franz Oeste, Münzenberg; Wolfgang Fexer angen; Wolfgang Jaumann, Nuremberg; Manfred M oreckse, Friedrichsdorf, and Joachim Kempfert, Kronberg, all of Fed. Rep. of Germany, assignors to Rutgerswerke Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 24, 1987, Ser. No. 18,200
Claims priority, application Fed. Rep. of Germa
986, 3610375
Int. Cl.⁴ C10C 1/18

S. Cl. 208—45 9 Claims

1. A method for the production of a carbon fiber precursor
al tar pitch comprising extracting coal tar pitch at
temperatures and pressure with a mixture of a super-
as and an entraining agent to obtain a solution free of
le components, recovering from the solution
pressure and/or raising the temperature at
lected from the group consisting of quino-
luene-soluble fraction, heat-treating
xture of said fractions at 380° to 450°
under non-oxidizing atmosphere at atmospheric pressure until 40 to 65% by volume of the product is converted into pitch containing mesophase, extracting the latter pitch with a
xture of a supercritical gas and an entraining agent to re-
pitch and recovering anisotropic pitch with a
nt of at least 75% by volume, a pyridine-

4,756,819

PROCESS FOR THE THERMAL TREATMENT OF HYDROCARBON CHARGES IN THE PRESENCE OF ADDITIVES WHICH REDUCE COKE FORMATION

acques Bousquet, Irigny; Thierry Barbou des Courieres, Lyons, and Jean Pierre Mermoz, Venissieux, all of France, assignors to Elf France, Paris, France

Filed Nov. 19, 1984, Ser. No. 673,325
priority, application France, Nov. 21, 1983, 83 184
Int. Cl.⁴ C10G 9/16

8—48 AA 13 Claims

rocess for reducing coke formation during a liquid
ermal treatment of a hydrocarbon charge having a high asphaltene content, which comprises forming a liquid admixture of the hydrocarbon charge and a coke formation inhibiting amount of from 100 to 2500 ppm of at least one metal
d, said metal selected from the gro
V, Fe, Co and Ni and thermally
uid phase at a temperature fr

METHOD FOI
FORMATION A

HYDROCARBON PROCESSING

Dwight K. Reid, Houston, and David R. Forester lands, both of Tex., assignors to Betz Labor Trevose, Pa.

Continuation-in-part of Ser. No. 773,402, Sep. 6, 1
4,680,421. This application Jul. 8, 1986, Ser. No
he portion of the term o

Int. Cl.⁴ C10G

perature processing of a l
stantial corrosion of meta

ed and processed at a temperat
600° F. a monohydric alco

4,756,821

METHOD FOR THE LIQUID PHASE HYDROTREATMENT OF HEAVY HYDROCA THE PRESENCE OF A DISPERSED CATA

Pierre Giuliani, Grenoble; Sigismond Franckowiak, maison; Gilbert Roche, La Barrière, and Pierre Bergez, Paris, all of France, assignors to Institut Francais du Petrol, Rueil-Malmaison and Commissariat a l'Energie Atomique, Paris, both of, France

Filed Feb. 10, 1987, Ser. No. 13,08
Claims priority, application France, Feb. 10, 19

C and 50-300 bars in a re
ng effluent from said reac

liquid
state of g
rculating said
of gas sub
ganic membrane at a tem
tion zone, said membrane
ng a liquid filtrate and a

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ALYST AND PROCESS

ncy J. Huang, Lawrenceville,
ssors Mobil Oil Corporation, New York,

No. 837,865, Mar. 5, 1986, Pat. No. 4,672,049
which is a continuation of Ser. No. 664,827, Oct. 25, 1984,
. This application Mar. 30, 1987, Ser. No. 31,807

. Pugh, Cleveland, all of England, assignors to
hemical Co., Ltd., Cleveland, England
d Mar. 5, 1986, Ser. No. 836,253
application United Kingdom.

to creat
pected
d

LIQUID FILTER WITH CHIP DETECTOR ASSEMBLY

Paul L. Howard, Jr., West Chester, and James L. Horan, Sharon Hill, both of Pa., assignors to Aeroquip Corporation, Jackson,

Ser. No. 876,085

tain of liquid entering said housing contacts first said

alarm circuit adapted to bec
lection of a specific chip quan

4,756,825

APPARATUS FOR PURIFYING HYDROG FLUORINATED LUBRICANTS

rul Bachmann; Hanns-Peter Berges, and Dieter Götz, all of Cologne, Fed. Rep. of Germany, assignors to Leybold Heraeus GmbH, Cologne, Fed. Rep. of Germany

Filed Apr. 22, 1986, Ser. No. 854,855
laims priority, application Fed. Rep. of Gerr
'85 3514162

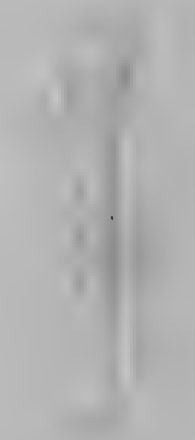
prising in combination, filter means
rial activated alumina or a substance
una, means for passing said lubricant
means; degassing means to remove volatile
d lubricant, said degassing means having an
tion; means for passing said lubricant into
ressure measuring means to measure
ed area, control means to control sai
means based on said pressure measurement; and
t means to monitor the quality of the filtered lubri

TANK FILTRATION SYSTEM

gene P. Horvath, 1011 Alberta St., Longwood, Fla. 327
Continuation-in-part of Ser. No. 282,759, Jul. 13, 198
abandoned. This application Jul. 18, 1983
Int. Cl.⁴ B01D 35/02

r having a handle bracket attac

aching means having a p
tioned for attaching a ba
id fasteners, said threaded fa
bolting onto a filter element, w
lements can be attached with sa
is threaded fasteners,
ns in said housing adjacent said impel
an be moved by said impeller through



4,756,82

LIQUID FLOW DRAIN

Mayer, Manassas, Va., assigno
Inc., Manassas, Va.

istribution box, said end cap compris
ace of generally circular geometry an
eter greater than an outside diameter of sa

diameter of sa

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4,756,825

GRAPHIC STRIP HAVING IMPRESSED EDGES

Robert Zak, Menlo Park, and Gerald of Calif

and second bott said apex point to said end openi ted to said end opening of said wash ally sealing fitting, said vibration box ibration bottom aligned flush with the second bot om segme between sa

el of said wash eing closed on iechanism ther bration box ha

for means actir washing box u

ieans acting on said first bottom seg r box in a direction generally toward

le for pulsating said washing box bottom wall ction of action of said conveying pulsator

; end

4,756,830

PUMPING APPARATU

, 166 Hyslop Rd.

d May 18, 198

---

pumps in driving solution from the

ENZYMATIC PROCESS

Kenneth Gold, Hastins-On-Hudson, N.Y., and Bruce W. Brodman, Stroudsburg, Pa., assignors to The United States of America as represented by the Secretary of th

Filed Aug. 17, 1987, Ser. No. 87

Int. Cl.⁴ C02F 1/38

U.S. Cl. 210—632

1. An improved enzymatic process for the r is from an aqueous solution resulting from th itrate ester comprising, introducing into an aq taining nitrite ions an enzyme nitrite reductase, said enzyme ng from inducement under facultative anaerobic cond f Pseudomonas sp

4,756,83

ONTAINING WASTE WATER D METAL RECOVERY PROCE

Blossel, 15 Woodside Ave., Metuche

d Aug. 19, 1986, Ser. No. 89

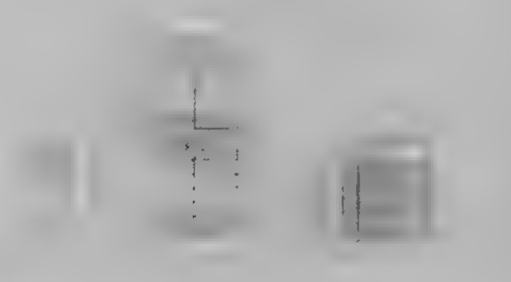
4,756,8

PROCESS AND APPARATUS FOR REM NITRATE FROM SURFACE AND GROUND PARTICULAR DRINKING WATER

Roman Menzel; Peter Hoffmann, both of Lingen, and Klaus-Dieter Vorlop, Braunschweig, all of Fed. Rep. of Germany, assignors to Noell GmbH

Filed May 30, 1986, Ser. No. 869,10

Claims priority, application Fed. Rep. of Ge



trates from surface and g by biological denitri

metal metal sa metal v

emoving the portab containing a backw saturated with hea eplacing the portabl

expands int

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... FOR THE PARTITION ... TOGRAPHY OF MACROMOLECULES, A ... OCESS FOR THEIR PREPARATION AND THEIR USE

...erner Müller, Munich, and Heinz L. Sänger, Martinsried, ... of Fed. Rep. of Germany, assignors to Merck Patent ...schaft mit beschränkter Haftung, Darmstadt, Fed. Rep.

...sion of Ser. No. 794,921, filed as PCT EP85 00054 on Feb. ..., 1985, published as WO85 03885, on Sep. 12, 1985, abandoned. This application Jul. 20, 1987, Ser. No. 75.500
Claims priority, application Fed. Rep. of Germany, Mar. 2, ...

...r chromatography of ... polymers, subcellular units, and whole ... se support, wherein a sample is partitioned ... mobile phase and a liquid phase associated ...port, the improvement wherein said phase ...xylated organic or inorganic base ... an average particle size of about ... a coating of polyacrylamide covalently ...rface of said base support particles via the ...said base support particles being non-absorp-

... MEMBRANES HAVING HIGH ... DENSITY AND LOW FOULING PROPENSITY

...P. Wilson, Borough of Hopatcong, N.J., ...ed Polymer Technology, Inc., Landing, N.J.
Filed Aug. 29, 1986, Ser. No. 901.82...

...having regularly spaced grooves on at least one surface, said grooves having a predetermined spacing factor, the sheets being positioned in a configuration with the grooves on one grooved surface of one sheet forming feed channels with a surface of another sheet which covers the said one grooved surface, said grooves being about 15 to about 75 mils wide and deep and said feed channels being used to deliver the feed stream to the membrane surface, thereby resulting in a liquid-rich permeate stream and a residual stream enriched in the remaining components of the mixture

4,756,836

DOWNHOLE HYDROGEN SULFIDE SCAVENGING ... DRILLING MUD USING IRON CHELATES

Gaines C. Jeffrey, Houston; Lance A. Cooper, Lake Jackson, both of Tex., and Sharon S. Whipple, Sanford, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Filed May 7, 1986, Ser. No. 860.598
Int. Cl.⁴ C09K 7/02; C23F 11/10

1. A method of decreasing hydrogen sulfide entrained in a mud flow while drilling an oil well comprising the steps of
(a) at a well head, adding iron chelate to the mud flow.
(b) circulating the mud bearing the iron chelate down the well in the drill string to expose entrained hydrogen sulfide from a formation to the additive for conversion ... hydrogen sulfide into elemental sulfur;
(c) circulating the flowing mud down the drill string and up the well to the surface to recover the mud where the additive is then exposed to a regenerating agent; and
(d) continuing the mud in circulation with the regenerated additive repetitively during the drilling process

10. In combination with a flowing drilling mud delivered to ...ring drilling operations, an additive for decreasing ... the mud, the additive comprising an ...n chelate mixed into the mud to reduce ... in mud circulat...

4,756,83...
...TIAL OXID...

...dium equivalence being the sum of the weight % of ...ions present plus 23/39 of the weight % of potassium ...sent (c) carrying out at a temperature between 190° to

...oin fragments.

4,756,83...
DRY DIALYSATE PRO...

Preston L. Veltman, 212 Old County Rd., Severna Park, Md. ...
Continuation-in-part of Ser. No. 123,355, Feb. 21, 1980, ...doned. This application Oct. 2, 1980, Ser. N...
Int. Cl.⁴ A61K 33/06; 33/14; C09K 3...

FIRE EXTINGUISHING COMPOSITION

Jon L. Carzon, 3331 Romelie Dr., Atlanta, Ga. 303..., Conrad S. Mikulec, 2400 NE. 26th St., Fort Lauderdale ...33305
Continuation-in-part of Ser. No. 843,763, Mar ... abandoned. This application Feb. 9, 1987, Ser ...
Int. Cl.⁴ A62D 1/00; C09K 3/00; A...
S. Cl. 252—2

...boric acid, ammonium borate, potassium ...rate, iron borate, zinc borate, boron ph... ...ide, and a potassium salt of an organic a...

...EREOF AND P... FOR PREPARING SAM...

Mark A. Sprecker, Sea Bright, and Rob... ...bridge, both of N.J., assignors to I... Fragrances Inc...

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GATING COMP
MACHINE PAR
Manfred Fischer, Leichlin,
bach, Burscheid, and Hans-Jochem Neuhauser, Be
Gladbach, all of Fed. Rep. of Germany, assignors to
AG, Burscheid, Fed. Rep. of Germany
8, 1986, Ser. No. 856,372
tion Fed. Rep. of Germ

na, all of Calif., assignors to
nia, Los Angeles, Calif
No. 696,006, Jan. 29, 1985, Pat
which is a continuation-in-part of Ser. No. 525
983, abandoned, which is a continuation-in-part o
158,981, Jun. 12, 1980, abandoned, and a
58,828, Jun. 12, 1980, Pat. N
part of Ser. No. 418,196, Sep
ich is a continuation-in-part of
58,981, , and Ser. No. 158,828, , and Ser. No. 525,691
1983, abandoned, and Ser. No. 525,719, Aug. 23, 1983,
oned, and Ser. No. 679,286, Dec. 7, 1984, Pat. No.
which is a division of Ser. No. 158,981, , and Ser. No
and Ser. No. 482,941, Apr. 7, 1983, which is a division
158,828, , and Ser. No. 476,513, Mar. 1, 1983, Pat.
385, Dec. 10, 1981, Pat. No.
, Aug. 23, 1983, abandoned,
art of Ser. No. 319,073, Nov. 9, 198
a continuation-in-part of Ser. N
981, Pat. No. 4,623,474, and a
Ser. No. 333,998, Dec. 23, 1981, Pa
continuation-in-part of Ser. No. 434,602
4,390,265, and a continuation-in-part o

ng oil and a minor amount of the compound of cla

4,756,843

POLYMER COMPOSITIONS USAB
FOR LUBRICATING OI

Jarrin, Boulogne; Magali Robine;
Rueil Malmaison, and Francois Dawans, Bougival, all
France, assignors to Institut Francais du Petrol, Rueil-Ma
maison, France
Filed Nov. 7, 1986, Ser. No. 927,9
Claims priority, application Fra

weight are derived from

Wilhelm E. Walles, Freeland, and Donald L. Tomkinson, A
burn, both of Mich., assignors to The Dow Chemical Co
pany, Midland, Mich.

BLEACHING COMPOSITIONS

Sugawara; Yōji Tōma, both of Tokyo; Takah
and Kenji Yokoi, both of Chiba, all of Japan, assignors to Lion
Corporation, Tokyo, Japan
Filed May 28, 1986, Ser. No. 867,513
Claims priority, application Japan, May 28, 1985, 60-114553
Aug. 30, 1985, 60-191615; Dec. 27, 1985, 60-299156; Apr. 1,
986, 61-75289
Int. Cl.⁴ C07D 213/84, C11D 3
252—102 16 Claims
bleaching agent composition comprising a peroxide
of releasing hydrogen peroxide in aqueous solution,
rized in that the composition further comprises an

alkyl group or a

ALKALINE TIN PLATE DEGREASING DETERGEN
asuo Matsuura; Kiyotada Yasuhara, and Satoshi Ikeda, a
Neyagawa, Japan, assignors to Amchem Products, Inc
bler, Pa.
Filed Mar. 9, 1987, Ser. No. 22,590
Claims priority, application Japan, Dec. 28, 198
Int. Cl.⁴ C11
Cl. 252—15
cleaning deterg
ast one organ
photeric surfacta
li metal detergent builder; and
prising the incorporation of at
earth metal salt selected from the
alcium carbonate, calcium hydroxide, calcium nitrate, magne
sium carbonate, magnesium hydroxide, magnesium nitrate, an

4-(5-SUBSTITUTED-PYRIM
ERIVATIVES AND LIQUID CR
COMPRISING SAME

oyuki Yoshida, Kamakurashi; Kisei Kitano, Yokohamashi;
Yoshito Furukawa, Yokohamashi; Tetsuya Ogawa,
Yokohamashi; Shigeru Sugimori, Fujisawashi; Yasu
Goto, Yokohamashi; Toyoshiro Isoyama, Yokohamashi
Kazunori Nigorikawa, Yokohamashi, all of Japan, ass
to Chisso Corporation, Osaka, Japan
Filed Jan. 8, 1986, Ser. No. 817,274
Claims priority, application Japan, Jan. 18, 198
Int. Cl.⁴ C0
U.S. Cl. 252—299

LE MIXTURE
MERIZABLE DIB
PALLADIUM COMPLEXES

und Fieke, Giffers; Sheik A. Zahir, Oberwil, both
land, and Jürgen Finter, Freiburg/Br., Fed. Rep.
assignors to Ciba-Geigy Corporation, Ardsley, N
Filed Feb. 5, 1986, Ser. No. 826,469
Claims priority, application Switzerland, Feb. 5

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UNTAINING ADDITIVES FOR
ING THE TRANSFER OF DYES AND
BRIGHTENERS

olf Weber, Duesseldorf; Winfried Pochandke, Baumberg, and Hans Andree, Leichlingen, all of Fed. Rep. of Germany assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany
d May 16, 1986, Ser. N
ty application Fed. Rep

att, Ohio, assi
cinnati, Ohio

4,756,851

AP-THICKENED REENTERABLE GEL EL
ENCAPSULANTS

mes L. Billigmeier, St. Paul; James D. Groves, Hudson; Hartwick A. Haugen, Roseville, and Richard J. Pokorny, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 732,423, May 9, 1985, Pat. No. 4,639,483
This application Oct. 1, 1986, Ser. No. 913,948
Cl.⁴ H01B 3/20; C10M 105/22; C08K 5/09; H02G 15/00
/2 17 Claims

lating composition of matter consisting of a

arts by weight of a plasticizer that does not

. Femus, Puyallup, Wash., as
., Federal Way, Wash.
Filed Aug. 4, 1986, Ser

PROCESS FOR THE CONVERSION INTO USAB
CONDITION OF ACTINIDE IONS CONTAINED IN
SOLID RESIDUE OF A SULFATE REPROCESSING
PROCESS FOR ORGANIC, ACTINIDE-CONTAININ
RADIOACTIVE SOLID WASTE

Herbert Wieczorek, Weingarten, and Bernhard Oser, Karlsruhe, both of Fed. Rep. of Germany, assignors to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany
Filed May 21, 1985, Ser. No. 736,622
Claims priority, application Fed. Rep. of Germany, May 984, 34
Int. Cl.⁴ G21F 9/06
52—626 4 Claim

cess for the conversion into a usable condition ctinide ions contained in the solid residue of a sulfate rep essing process for organic, actinide-containing radioact solid waste, which are present in the form of water sol sulfate complexes, the solid residue being one whi tain insoluble constituents, comprising:

(a) dissolving the solid residue with water or
hat the residue s
t of the residue
(b) in the case where the solid residue contains insolub constituents, separating the resulting solution from the insoluble constituents of the residue, and heating the solu tion to a temperature in the range point of the solution to form

selected temperature in the same range as in step b eriod in the range of 0.5 to 2 hours to precipitate bari

cooling the rea
hen separating
lfate precipitate
trate aqueous solution, and
ly feeding without conducting

4,756,85

D APPARATUS FOR DETEC
HYDROCARBON FUEL LEAKS

Wegrzyn, Dunwoody, Ga.,
on, Calabasas, Calif.
Filed May 7, 1
Int. Cl.⁴ G01

Okla., and Alejandro V. Santin, Houston, Tex., assignor Phillips Petroleum Company, Bartlesville, Okla.
Filed Apr. 4, 1986, Ser. No. 848 18
Int. Cl.⁴ B29C 31/00; 47/92; G01N

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d Dec. 20, 1984, Ser. No. 684,0

been disclaimed

PROCESS OF APPLYING A TOP ELEMENT TO A
CONTAINER UTILIZING A HOT MELT MATERIAL

ohn Dezio, Weston, Conn.; Leonard A. Blomquist, Joliet, Ill.; Michael J. Racanelli, Rosemont, Ill., and John M. Ross, DesPlaines, Ill., assignors to Continental Plastic Containers, nc., Stamford, Conn.

4,756,858
ERMOPLASTIC
ECYCLED TRIMMINGS

Hans Reifenhauser, Troisdorf; Heinz Beisemann, Köln; Clemens Krumm, Neunkirchen-Seelscheid; Hans-Dieter Ott, St. Augustin, and Paul Reitemeyer, Troisdorf, all of Fed. Rep. of Germany, assignors to Reifenhauser GmbH & Co. Maschinenfabrik, Troisdorf, Fed. Rep. of Germany

Filed Feb. 6, 1987, Ser. N

Claims priority, application Fed. Re

'86, 3604

264—37

orming part of the core-layer intake passage, and trimmings fitting mounted on the nozzle body and having a trimmings intake passage and a trimmings feed passage extending therefrom to the cover-layer distribution passage and extending substantially the full length of and opening along the full length of the merge passage, the ozzle body further being formed with a branch passage tending from the cover-layer intake passage to the trimmings feed passage.

ing a liquefied core-layer resin und

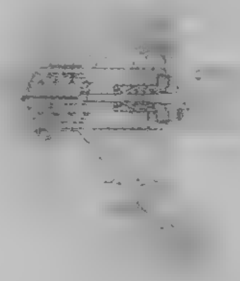
r intake passage and therethrough

utlet slot such that the core resin

xtending the full length of the outlet slot;

ans for feeding laminate trimmings under pressure rimmings intake passage and therethrough and thro rimmings feed passage to the merge passage.

ans for feeding a liquefied cover-layer resin u



tend the full width of t

strips from an outlet slo

ARTICULARLY HIGH STRENGTH AND A PLANT
FOR IMPLEMENTING SAID METHOD

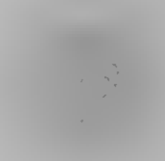
retti, Vacallo De Chiasso, Italy, assignor to Plastoa, Vaduz, Liechtenstein

Filed May 28, 1986, Ser. No. 868,13

ns priority, application Italy, May 31, 1985, 468

Int. Cl.⁴ C08J 9/22 B29

panded first mass from ster
nto a second chamber defin
the first chamber walls, said secon
at both ends, said second chamber



Walter J. Hooper, Pla

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ng a second generally
yor having a second
ning the thickness
eyor run being

an between said sheets
enel edge guide plates extend
he surface of said first conveyor
to said one end in a direction
aid first conveyor run and ex-
ion of said first conveyor run on
nt solidification of said plastic
ig said lower facing sheet along
aid wrapped edges of said panel
panel
vertically upward to a point

4,756,861

s mold
ing said
sing vibration means and drive means
and a vibrator ring attached to said
mitting vibration and rotary movement
d vibrator table to said lower curing pallet, the im-
ent comprising said vibrator ring having selectively
able means to rigidly connect said vibrator ring to said
llet when said vibration means is activated
a method for forming a concrete pipe which includes
oncrete material in a pipe mold containing a lower

tor ring and sa
ageable means wl
e means are activa
aid engageable means thereafter

4,756,862

BIOELECTIC DEVICES HAVING COATINGS OF SELECTED POROUS BIOENGINEERING THERMOPLASTICS

Myron Spector, Charleston, S.C.; George T. Kwiatkowski, Greenbrook, N.J.; Walter H. Smarook, and Michael J. Michno, Jr., both of Somerville, N.J., assignors to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 614,374, May 24, 1984, abandoned, which is a continuation of Ser. No. 417,586, Sep. 13, 1982, abandoned, which is a division of Ser. No. 113,317, Jan. 18, 1980, Pat. No. 4,362,681, which is a continuation-in-part of Ser. No. 377, Dec. 29, 1978, abandoned, which is a division of Ser. No. 787,531, Apr. 14, 1977, Pat. No. 4,164,794. This application Jun. 23, 1986, Ser. No. 878,515

Int. Cl.⁴ A61F 1/24

imized, said process comprising the steps of
a mixture of at least one sinterable bioengineer-
ing thermoplastic material selected from the group con-
sisting of polysulfones, polyphenylenesulfides, polyace-
tals, thermoplastic polyesters, polycarbonates, aromatic polyamides, aromatic polyamideimides, thermoplastic polyimides, polyaryletherketones, polyarylethernitriles and aromatic polyhydroxyethers, in particular form, said
aving at least one fraction of a biomodal distribu-
rage particle diameters of from about 7.1 to

pection having average diameters
eater than about 50 microns, and
a porosity f greater than about 25 percent

METHOD FOR HOT-FORMING A LAMINATED SHEET OF SYNTHETIC RESIN AND A DEVICE FOR WORKING THIS METHOD

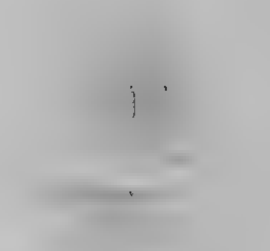
Georg Petershofer, Wiener Neudorf, Austria, assignor to Isovolta Österreichische Isolierstoffwerke, Wiener Neudorf, Austria

PCT No. PCT/AT85/00039, § 371 Date Jun. 10, 1986, § 102(e) Date Jun. 10, 1986, PCT Pub. No. WO86/02314, PCT Pub. Date Apr. 24, 1986

PCT Filed Oct. 14, 1985, Ser. No. 881,040

Claims priority, application Austria, Oct. 12, 1984, 3269/84

te laminated sheet, with one
nging over into a counterpressu
opriately circular-cylindrical ben
has a bending plate that is pivoted
around an axis parallel to the axis
rface and has a plane pressure s



Filed Apr. 1

Claims priority, applic

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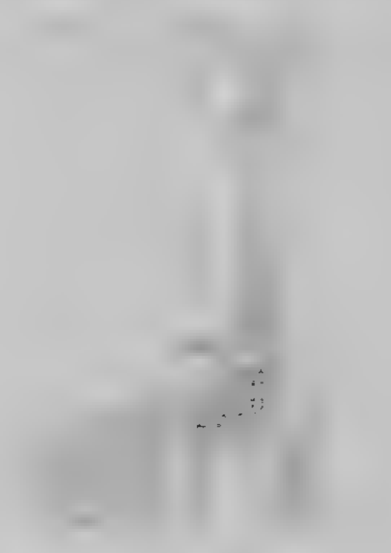
DETECTION

...ner on the base (5)

...finger (21) mounte...
the base (5) intend...
3), in order to actuate the thrust arm (20) when th...
to contact.
...nd a measuring assembly carried by the supportin...
...onsisting of a stage (30) mounted ...
...as to be movable in all the di...
...e base (5) and with limited an...



...he outer surfa...

...the active measuring position

...ATING RELATIVE TO THE SURFACE OF A PLATE

...ocquel, Deuilly, France, assignor to Framatome, Cour...

Filed Apr. 1, 1987, Ser. No. 32,69...
...priority, application France, Apr. 7, 1986, 86 049...

10 Claims

...nt of the outside diame-
...rated with at l...
...drical element...
...apparatus (2) connected to the
...easuring apparatus comprises
...nsisting of a plane annular base

4,756,868

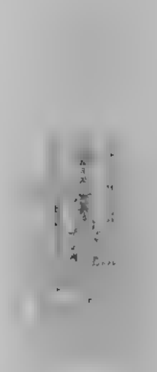
MECHANISM FOR CONTROLLING AND ... CONTROL BAR IN A LIQUID COOLED NUCLEAR REACTOR

Fernand Savary, Saint Leu La Foret; Rene Peletan, La Varenne Saint Hilaire; Guy Desfontaines, Puteaux, and Serge Cochin, Montigny Le Bretonneux, all of France, assignors to Framatome, Paris La Defense, France

Filed Jan. 24, 1986, Ser. No. 822,167
Claims priority, application France, Jan. 24, ...
Int. Cl.4 G21C 7/06

...having a tank containi...
...rs each provided with...

...l in the high p...



...lattener, Dusseldorf, Fed. Rep. of Germany, assignor ... rschungsanlage Julich GmbH, Julich, Fed. Re...

...No. 679,461, Dec. 7, 1984. This appl...
...17, 1986, Ser. No. 840,426
Claims priority, applicat...
...983, 3344525

...ng at least one n...
...aring said nucle...

Fed. Rep. of Germany, assignors to Deutsche Gesellscha... Wiederaufarbeitung von Kernbrennstoffen mbH, Han... Fed. Rep. of Germany
...tion of Ser. No. 767,180, Aug. 19, 1985

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Mallener, Dusseldorf, Fed. Rep. of Germany, as-
forschungsanlage Julich GmbH, Julich, Fed.

R POWER PL
VITH A HELI
HIGH TEMPERATURE REACTOR

choening, Hambruecken, Fed. Rep. of Germany, assignor
chtemperatur-Reaktorbau GmbH, Fed. Rep. of Ger-

ied Jun. 12, 1987, Ser. N

ERATURE PEBBLE BED REACTOR

ning, Hambruechken; Winfried Wachholz, Gorx-
er Tal, and Ulrich Weicht, Weinheim, all of Fed. Rep. of
any, assignors to Hochtemperatur-Reaktorbau GmbH,
Rep. of German

iled Sep

s priority, app

essor connected to said recuperator
radiator aligned above said interme-

ont, and David M. Blaies, San
to General Electric Company

22, 1986, Ser. No. 944,783
Cl. G21C 9/0

for inhibiting the de

Fumio Fujima, and Tetsuo Yamamoto, both of Yokohama, Ja-
pan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
ontinuation of Ser. No. 655,224, Sep. 27, 1984, abando
application Aug. 7, 1986, Ser. No. 893,45
Claims priority, application Japan, Sep. 29, 1983

May 29, 1986.

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ig convexly cor

4,756,879
R PLUG OF A LIQUID MET
NUCLEAR REACTOR
Albert Arene, Pertuis; Philippe Verriere, Manosque; Luigi Fierazzi, Aix en Provence, and Charley Renaux, Jouques, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed May 24, 1984, Ser. No. 613,892
ity, application France, May 26, 1983, 83 08…
Int. Cl.⁴ G21C 13/0…

0 4 Clai…

L O Hara Twp., Allegheny County, and Stephen
ashington Twp., Westmoreland County, both of

Filed Nov. 6, 1985, Ser. No. 795,505

rotary plug, are constructed … lements fixed to a lower part of the … in part by control rod sleeve elements … ed, at least at the horizontal level, by

ore support pla…

, and wherein the deflecting p… r sampling liquid metal at the … cated possible sheath fracture … being rigidified … he deflecting pl… t of the liquid metal jet leav… shaped plates are located bel…

6,8…
ETHOD OF MAKING SAME
…king; John F. Patterson; Jack Yates, all of Richland, …arles A. Brown, Kennewick, all of Wash., assignors to

4,756,880
RADIANT HEAT VAPORIZING INJECTOR
…N. Haigh, Lancaster, Pa., assignor to Harbinger I…
Denver, Colo.
Filed Oct. 5, 1987, Ser. No. 104,23…
Int. Cl.⁴ C21C 7/…

COOLING WATER SYSTEMS USING CHEMICALLY
MODIFIED ACRYLAMIDE OR METHACRYLAMIDE
POLYMERS
John E. Hoots; Donald A. Johnson, and Dodd W. Fong, all of Naperville, Ill., assignors to Nalco Chemical Company, Naperville, Ill.
Filed May 9, 198…
Int. Cl.⁴ C23F 11/1…

corrosion in and

…lemours and Company, Wilmingt…

…ruel F. Jacobs, and Sen-Min Lin, bot…
…signors to Surgikos Inc., Arlington, Te…
Continuation-in-part of Ser. No. 747,309, Jun. 2…
4,643,876. This application Jan. 27, 1987, Se…
…portion of the term of this patent subsequ…
…4
Cl.⁴ A61L 2/14

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1092
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…man, Cupertino; Michael E. Cobb, Sunnyvale; Jim
Los Altos; Ito Gibbons, Menlo Park; Vladimir Ostoich,
…se, and Laura J. Winfrey, Belmont, all of Calif., assign…
Biotrack, Inc., Mt. View, Calif
…ntinuation-in-part of Ser. No. 762,748, Aug. 5, 1985,
…is application Jul. 1, 1986, Ser. No. 880,79…

…ment between a…
…unit and said…

…reagent in said capillary pathway
…r selected from the group consisting
…and antibodies
…of said fl…

…OR FOR DETERMINING…
…YGEN CONTENT IN GASES
…emseck; Helmut Weyl, Schwieberdingen
Martin Wiedenmann, Stuttgart, all of Fed. Rep. of
…ny, assignors to Robert Bosch GmbH, Stuttgart, Fed.
…f Germany
…DE85/00229, § 371 Date Feb. 21, 1986, § 102(e)
…1986, PCT Pub. No. WO86/00709, PCT Pub.
…Filed Jul. 4, 1985, Ser. No. 852,607
…y, application Fed. Rep. of Germany, Jul. 6,
…; Mar. 30, 1985, 3511730

23 Claims

…or and protector for
…solid particles,
…stion engines

…elongated measuring element having a…
…ed by the housing and a second port…

…he measuring element from the gas to
…oxygen content and including an elon-
…d cup-like protective pipe with a pipe end engaging
…open end of the housing, said pipe forming a chamber
…chamber accommodating said second portion, said pipe…

…at least one outlet opening in said pipe communic…
…with said chamber and spaced away from said b…
…portion, and deflection means extending inward from…
…pipe at an acute angle relative to said longitudinal a…
…said pipe and away from said bottom portion so that…
…ly through said chamber

…by preventing solid particles in gases from enterin…
…chamber

…DS SEPARATE…
…N.Y., and Lisbeth…
South Richfield, Minn., assignors to Stone & Webster
…neering Corporation, Boston, Mass.
Filed Apr. 10, 1986, Ser. No. 850,144

…ally conical walls
…and a bottom wall
…om the upper end
…d mixed phase u…
…ith said solids ph…

…ing in said downwardly and…

…ystem having a tubular riser re…
…r ®generated catalyst particulat…
…r delivering hydrocarbon…
…ent comprising a gas-so…
…d removal of particulate s…
…m of solids and gas exiting the riser reactor
…g affixed to the top of the riser reactor and
…effecting a 180° change in direction of the…

…Robert Surjous, both of Lango…
…mpagnie Francaise de Mokta, Pa…

…of Calif., assignors to U…
…Angeles, Calif.

…all of San Diego…
…ration, San Diego, Calif.
Continuation-in-part of…
…andoned. This…
Int. Cl.⁴ C01B…
Cl. 423—23…

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o a radially ze
neans which
eof, whereby said reduc
hout said stream as it

reof by contact

of sai
uding a

ostenstein-Leopoldshafen, and
of Fed. Rep. of Germany), assig

4,756,892

PARATING FROM FLUE GASES SUCH RE AGRESSIVE AND INJURIOUS TO THE MENT, AND PLANT TO CARRY THE METHOD INTO EFFECT

Ole T. Kragh, Vedb k, and Jens L. Getler, Bronshoj, both of Denmark, assignors to **Anhydro A/S, Soborg, Denmark**

Continuation of Ser. No. 187,590, Sep. 19, 1980, abandoned. This application Feb. 16, 1983, Ser. No. 467,066

Claims priority, application Denmark, Sep. 21, 1979, 3959/79

Int. Cl.⁴ C01B *7/00, 17/00;* B01J *8/00*

n a method of treating flue gases by reacting the flue gases in an atomizing conditioning plant with a chemical selected from the group consisting of sodium hydroxide, sodium bonate, calcium hydroxide and calcium carbonate, and th the gases, and removing the nonreacted surplus of the reac

4,756,893

LPHUR DIOXIDE PRODUCTION

erter means including a mem
g a medium therethrough and
m the converter means, and evapora
olling the temperature

further the flue gas to

it gas to third heat exchar
n of heat therefrom, and
l desulphurized
effecting the c
sulphur oxides at

itting gases having sulphur oxides to catalytic con
er means in order to convert the sulphur dioxide
d resulting in a sulphur triox
er means including a mem
a medium therethrough and
the converter means, and evapora
ling the temperature in the converter

by said reactant
evaporator mechan
the reaction between

edium from said reactor to steam
turated steam to first heat
changing
reaction product of the reactant and sul

desulphurized exit gas of said reactor through

4,756,894

PROCESS FOR THE OBTAINMENT OF BORIC ACID FROM COLEMANITE AND/OR HOWLITE MINERALS

Jose Polendo-Loredo, Monterrey, Mexico, assignor to Materias Primas Magdalena S.A.DE C.V., Monterrey, Mexico

Filed Jan. 29, 1987, Ser. No. 8,525

riority, application Mexico, Jan. 29, 1986, 1389

Int. Cl.⁴ C01B *35/12*

13—200 13 Claims

cess for obtaining boric acid from colemanite miner te minerals, or mixtures thereof, comprising treating
boron compound
e insoluble solid
ydrogen sulfide

,756,895

HEXAGONAL SILICON CARBIDE P PREFORMS AND METHODS FOR MAK SAME

olfgang D. G. Boecker, Lewiston; Stephen Chwastiak, East Amherst; Tadeusz M. Korzekwa, Lewiston, and Sai-Kwing East Amherst, all of N.Y., assignors to Stemcor Corporagara Falls, N.Y.

Filed Aug. 22, 1986, Ser. No. 899,523

Int. Cl.⁴ C01B

S. Cl. 423—345

Continuation of Ser. No. 832,101, Feb. 2
This application Ap
Claims priority, applicat

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below th
intermedi

Theodore A. Rado, Oklahoma City
McGee Corporation, Oklahoma C

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4,756,898

OCELLULAR CARBON OR
MPREGNATED CARBON FOAM
S FOR THEIR PREPARATION

R. Hopper, Danville, and Richard W. Pekala, Pleasant
of Calif., assignors to The United States of America

all the sodium chlor
e compact, so that

RS OF HIGH PURITY LOW ARSENIC
YDROUS HYDROGEN FLUORIDE

eodore J. Jenczewski, Sherrill; Robert L. Sturtevant, Hamburg; Thomas R. Morgan, Jordan, all of N.Y.; Barry J. Boghean, St. Clair Beach, and Donald C. Butt, Brampton, both of Canada, assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Feb. 12, 1987, Ser. No. 14,422

Int. Cl.⁴ C01B 7/19

U.S. Cl. 423—483 26 Claims

A process for manufacturing anhydrous hydrogen fluo
ced levels of arsenic impurity from arsenic con
drous hydrogen fluoride which comprises
said anhydrous hydrogen fluoride with an

non-volatile pentavalent

ring anhydrous
senic impurity

4,756,900

RECYCLING OF WASTE HEAT BOILER EFFLUENT TO
OXYGEN-ENRICHED CLAUS REACTION FURNACE

graft, and Gary M. Bood, both of Tulsa, Okla.
Amoco Corporation, Chicago, Ill
Jan. 14, 1987, Ser. No. 3,09

4,756,901

PURIFICATION OF NB

Ricardo C. Pastor, Manhattan Beach, and Luisa F. Gorre, Oxnard, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif

Filed Dec. 18, 198

Int. Cl.⁴ C01G

423—59

dward W. Sunbery, Lancaster, all of Pa., assignors to
er-Lambert Company, Morris Plains, N.J.
ntinuation-in-part of
ndoned. This applica
Int. Cl.⁴ B65

ale body, said

is application Feb. 19, 1987, Ser. No. 18,817
iority, application Japan, Mar. 4, 1985, 58-

Associated Universities, Inc., Oak Ridge, Tenn.
Filed Jun. 5, 1986, Ser. No. 871,0

Continuation-in-part of Ser. No. 840,9
abandoned. This application Mar. 4, 19

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Lupin.
6, Ser. No. 934,561

ASE FORMULATION
Junction; George E. Reier,
and Nemichand B. Jain, Monmouth Junction, all
nors to E. R. Squibb & Sons, Inc., Princeton, N

methoxyl con
in 2%
second

hat there is not
ent and essential
hydrophobic polymer
a weight ratio to each

SYRUP SWEETENER PROD
ell; Pat R. Mitchell, both of M
A. Mitchell, Shelburne, Vt., assign
ural Products, Manteca, Calif
Filed Apr. 28, 1986, Ser. No. 856,504
Int. Cl.⁴ A23L 1/05, 1/0

having a glucose conten

4,756,913
SOUR MILK PRODUCT
Evgenia A. Khorkova, ulitsa Generala Glagoleva, d. 25, korpus 2, kv.26; Vera F. Semenikhina, ulitsa Ostrovityanova d. 24 korpus 1, kv. 13; Lilia N. Ivanova, ulitsa Khudynskaya, d. 12, ina B. Sukdukova, ulitsa Serpukhovsky val, d. 14, ria S. Ladodo, Kotelnicheskaya naberezhnaya, d 33, kv.17; Natalya N. Semenova, ulitsa Bolshaya Pirogovskaya, d. 5, kv. 44, and Svetlana M. Barashneva, ulitsa 3-ya Frunzenskaya, d. 6, kv. 106, all of Moscow, U.S.S.R.

4,756,914
ARAMEL-CONTAINING CELLULOSIC
-Chung Jon, Westmont, and Myron D. Nicholson, Lemont both of Ill., assignors to Viskase Corporation, Chicago, Ill.
Filed Oct. 20, 1986, Ser. No. 920,381
Int. Cl.⁴ A22C 13/00

-containing cellulosic casing wherein the cara
distributed through the casing wall and a
ace, and immobilized in the cellulose w
emical bonded state so as to be subst

4,756,915
PROCESS FOR PREPARING A BE
Reuven Dobry, Stamford, Conn., assignor to Te
tion, Conn
iled Apr. 9, 1987, Ser. No. 36

PROCESS FOR PRODUCING LOW OIL POTATO CHIPS
Mark Dreher, Highland Village; David Duval, Arlington; David L. Dodd, Plano; Lawrence W. Wisdom, Dallas, and James C. Dzmiewski, Irving, all of Tex., assignors to Frito-Lay, Inc., Dallas, Tex.

ING SHEET AND
POUCHES USING THE SHEET
Mamoru Kamada, Nara; Fumiaki Nagase, Kashiwara; Takeuchi, Osaka; Toshihiko Nakano, Kashiwara, and Makimoto, Sennan, all of Japan, assignors to ... tano Kabushiki Kaisha, Osaka, Japan
Filed Nov. 19, 1986, Ser. No. 932,4
Claims priority, application Japan, Nov. 30, 1985, 60- Apr. 24, 1986, 61-97549; Apr. 24, 1986, 61-97550; Aug. 1 61-1 Oct. 3, 1986, 61-2 Nov. 12, 1986, 61

4,756,916
OR PROCESSING SILVER
PHOTOGRAPHIC MATERIALS INCLU
COUNTER-CURRENT BLEACHING-FIXATI
Shinji Ueda; Akira Abe, and Junya Nakajima, al Japan, assignors to Fuji Photo Film Co., Ltd. Japan
iled Oct. 17, 1986, Ser. No. 920,2
s priority, application Japan
Int. Cl.⁴ G03C 7/

one additional bleaching fixation bath each ble
bath containing a solution with at least one blea
at least one fixing agent, while adding replen
one of the additional ble
rently introducing ove

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[illegible]

[illegible] COATING METHOD

[illegible] ,ama, Asaka; Seiichi Umeda, Tsurugashima; Hiroaki Ohshima, Tokorozawa, and Sashiro Motegi, Ageo, all of Japan, assignors to Freund Industrial Co., Ltd. and Kirin Brewery Co., Ltd., both of Tokyo, Japan

[illegible] ed May 8, 1987, S [illegible]

[illegible] application Japa [illegible]

Int. Cl.⁴ B05D [illegible]

[illegible] ating method for separating [illegible]

[illegible]

[illegible] ROLLING R [illegible]

[illegible] CRODUCT F [illegible]

[illegible] ; Ronald A. Kasel [illegible]

[illegible] en A. Schubert, Tucson, Ariz., assign [illegible]

[illegible] siness Machines Corp., Armonk, N.Y.

[illegible]

[illegible] ARBONATION O [illegible]

[illegible] 5, 1984, Pat. N [illegible]

[illegible] is application Apr. 10, 1986, Ser. No. 850,18 [illegible]

[illegible] on of the term of this patent subsequent to Feb. 1 [illegible]

[illegible] 02, has been disclaimed.

[illegible]

[illegible] material, the m [illegible]

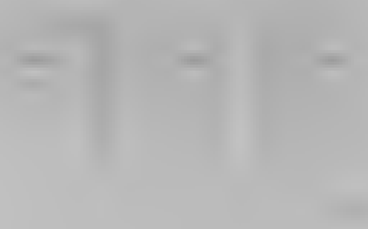
[illegible]

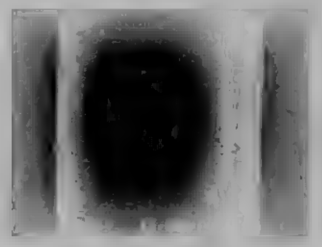
[illegible] Yamada, Ashiya; Fumiki Takahayashi; Yoshiyuki S [illegible] both of Takatsuki, and Katsuyuki Kasaoka, Ibaraki, Japan, assignors to Teijin Limited, Osaka, Japan

Division of Ser. No. 895,791, Aug. 12, 1986. Th [illegible]

Jan. 19, 1987, Ser. No. 64,337

Claims priority, application Japan, Aug. 27, 1 [illegible]





[illegible]

[illegible] PLATING TREAT [illegible]

[illegible] O IMPROVE ADHES [illegible]

RUBBER

[illegible] Furukawa, Blacksburg, Va., and Tadamiko Takei, Osaka, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Mar. 20, 1987, Ser. No. 28,353

Claims priority, applic [illegible]

Int. Cl.⁴ B0 [illegible]

[illegible]

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Lelstrom, bott

rm of this patent

continuation-in-part of Se

HEIR PRODUCTION AND USE

ano, Belleville; Jeffrey P. Shawcross, Phillipsburg, Alfred E. Fuchs, Denville, and Robert DeJaiffe, Oak Ridge, all of N.J., assignors to Potters Industries, Inc., Hasbrouck Heights, N.J.

Division of Ser. No. 676,920, Nov. 30, 1984, Pat

This application Jun. 5, 1986, Ser. No.

Int. Cl.

COATED COMPOSITE HOLLOW FIBER MEMBR

Pushpinder S. Puri, Macungie, Pa., assignor to Air Prod

Chemicals, Inc., Allentown, Pa.

Westmunster, Fed. Rep. of Germany, assignors to Metall gesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 16, 1986, Ser. No.

Nov. 9, 1985, 3539774

Int. Cl.⁴ B

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Osaka, and Yuichi Yoshida, Kyoto, al

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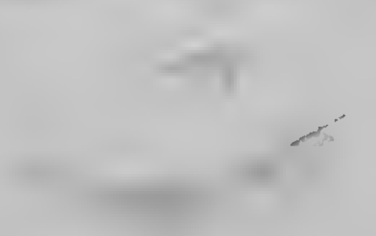


gration of said fluid and any associated bacte
roduct, said pad comprising a mat of fluid abso
two oppositely facing substantially flat sur-
ortions therebetween and a cover made from
ible material enclosing said mat, said cover
facing substantially flat imperf
vith said oppositely facing surfa

ROLL STRAIN RELIEF

, Hillsboro, all of Oreg., assignors to Tektronix, Inc
, Oreg.

away from the

to the cover laminate
rigid stiffener having a
r laminate and flexible

4,756,941

MATERIALS FOR M

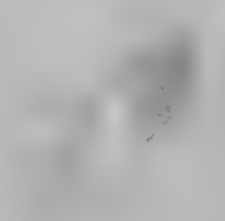
ANTI-STATIC CARPET AND BACKING

P. McCullough, Lake Jackson, Tex., and David
, Auburn, Ala., assignors to The Dow Chemical Comp
Mich.

Filed Jan. 16, 1987

led to the back side of a carpet or incorporated int
ional backing scrim or tuft lock coat, said non-linear
filament being derived from a stabilized polyacr
petroleum or coal tar spun fiber or filament, w
rmed into a non-linear coil like configuration
ion ratio greater than 1.2
figuration in the relax
ally carbonized

Filed
Claims priority, ap
3742, 85



Koletzko, Kottermoor, Fed. Rep. of Ger
to Messerschmitt-Boelkow-Blohm GmbH, M
of Germany

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ILE STEP FOR AI

red Apr. 8, 198

plication

p and Supply Company, Denver, Colo.

ation-in-part of Ser. No. 692,502, Jan. 18

251. This application Aug. 25, 1986, Ser.

Int. Cl.

28—12

Limited, Lancashire, England

Continuation of Ser. No. 787,702, Oct. 15, 198

which is a continuation of Ser. No. 447,936,

abandoned, which is a division of Ser. No. 195,159

Pat. No. 4,374,798, which is a continuation-in-p

979, abandoned. This ap

Ser. No. 14,15

Nishikawa, Shiga; Shiro Imai, Otsu;

Otsu; Yuriko Yoshida, Otsu; Masato Shimada, Otsu;

Nagashima, Kusatsu, and Teruo Nakamura, Otsu, all

of Japan, assignors to Toray Industries

of Ser. No. 622,214, Jun. 19, 19

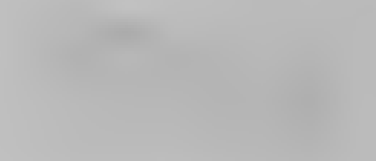
AUTOMOBILE

, Hiratsuka; Hiroki Kawanari, Ichikawa;

Yamaguchi, Utsunomiya; Hisao Tetsuka, Tochi

Nakatsuka, Isehara, and Shingo Takahashi, Utsun

Jul. 21, 19



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asei Co., Ltd., Tokyo

Japan

TING VARNISH
LAMINATES PREPARED THEREFRO
dy R. Berman; Avis L. McCrary, both of Lake
Dennis L. Steele, Freeport, all of Tex., assignor
Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 821,36

about 30 perce

Products, Inc., Allentown, Pa.
ion of Ser. No. 712,842, Mar. 18, 1985, aband

; Kazuo Imahashi, Chofu; Yo
shida, Shiga; Satoshi Kitagawa
zawa, Shiga, all of Japan, assig
dustrial Co., Ltd., Toyonaka; Tak
ki and Art Crafts Co., Ltd., T

, which is a continuatio
bandoned. This applicati

FIBERS FROM

layashi, Gifu, and
ll of Japan, assignors to Ishizuka Garasu Kabushiki K
Nagoya; Daito Kako Kabushiki Kaisha, Gifu; Nagara
Kabushiki Kaisha, Motosu and Kabushiki Kaisha Hi
oten, Gifu, all of Japan
d Feb. 19, 1987, Ser. No. 16,28
application Japan, Feb. 20, 19

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METHOD USING THE SAME
[illegible] Yamamoto, Nihonbashi; Eiichi Suzuki, Itabashi; Reiko [illegible]nagiba, Kawasaki; Shigeo Toganoh, Tokyo, and Toshiaki [illegible]imura, Sagamihara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 8, 1986, Ser. No. 90[illegible],452
[illegible]ority, application Japan, Sep. 10, 1985
[illegible]

[illegible]stabilizer, wherein said light sta[illegible] furthest from said substrate, where[illegible] said substrate is composed of a mat[illegible] [illegible]aid protective a[illegible]

[illegible] FILMS HAVING AN AMORPHOUS CARBON COATING AND METHODS OF MAKING
[illegible] J. J. Kincaid; Virgil B. Kurfman, both of Midland, Mich., and Nick M. Sbrockey, Milwaukee, Wis., assignors [illegible] The Dow Chemical Company, Midland, Mich.
Filed Sep. 29, 1986, Ser. No. 912,30[illegible]
Int. Cl.[illegible] B32B 9/00, 31/00; B65D 1/00; B05[illegible]
Cl. 428—40

[illegible] D. ROB[illegible]
[illegible]lemens, Mich.
[illegible]n, Pittsburgh

TRANSPARENCY FILM A[illegible] PROCESSING LIQUID PA[illegible]
Gordon F. Kinsman, Billerica, and F. Rich[illegible] Easton, both of Mass., assignors to Pol[illegible] Cambridge, Mass.
Filed Jul. 20, 1987, Ser. N[illegible]

[illegible]g said envelope

[illegible]ing an edge mo[illegible] [illegible]dge, said remote edge [illegible] [illegible]ent said trailing edge [illegible] pad adjacent to said ap[illegible] [illegible]g said photosensitive layer, sa[illegible] [illegible]ze to substantially cover said [illegible]ieet including upper and lo[illegible]

[illegible]apan, assignors to Canon Kabushiki Kaisha, To[illegible]
Filed May 23, 1986, Ser. No. 866,31[illegible]
[illegible]985, 60-111366; May 25, 1985, 60-111[illegible] [illegible]368; May 25, 1985, 60-111[illegible]

ADHESIVE SHEET[illegible]
[illegible]yoshi Ebe, Hiroaki Narita, Katsuhisa [illegible]Ikeda, and Takanori Saito, all of Saitama, Japan, a[illegible] [illegible] Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 18, 1986, Ser. No. 9[illegible]
[illegible]laims priority, application Japan, Dec. 27, 1985 [illegible]c. 27, 1985, 60-295189; Dec. 27, 1985, 60-295[illegible] [illegible]6, 61-[illegible]; Mar. 3, 1986, 61-[illegible]; Ja[illegible]

[illegible]he surface thereof an adhesive [illegible]methacrylic adhesive and a [illegible]

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SILOXANES

rma A. Virtanen; Paavo K. J. Kinnunen,

T No. PCT FI85/00102, § 371 Date Aug. 26, 1986, § 10
Date Aug. 26, 1986, PCT Pub. No. WO86/04063, PCT
Date Jul. 17, 198
PCT Filed Dec. 20, 1985, Ser. No. 907,65

ei, and Johannes M. G. Verhoeve

PHOTOCHROMIC LENS

Arakawa, and Naohiro Murayama, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 7, 1986, Ser. No. 882,303

26, 1985, 60-292347
Int. Cl.⁴ B32B 27/36; G02

hotochromic lens c

4,756,974

ANTONERIC COMP
PHARMACEUTICAL DEVI

berg, Upper Darby, Pa., a

COATING AUTOMOBILE
BODIES

ahiro Fujii; Osamu Iwase; Hiroshi Oosumimoto; Sh
Sugiura; Ichiro Tabushi; Masafumi Kume; Takashi Unagami
and Komaharu Matsui, all of Hiratsuka, Japan, assignors to
Kansai Paint Co., Ltd., Amagasaki, Japan
Filed Nov. 8, 1985, Ser. No. 796,450
Claims priority, application Japan, Nov. 12, 1984
Dec. 10, 1984, 59-260197
Int. Cl.⁴ B
U.S. Cl. 428—46

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porate the solvent and thereb

to produce a ceramic or ceramic-like

ne, halodisilane, halopol

presence of ammonia.

disilane, halodis

alkane of one to six carbon atoms or
further in the presence of ammonia, and
ing coating is deposited
p consisting of (i) chem
alosilane, halodisilane
in the presence of an
nd (ii) plasma enhanced
e, halosilane, halodi

means selected from th
l vapor deposition of a

disilane, ha
ence of an alkane
silane and furth

tured on the ele

BATTERY AND MOUNT

1712 Marion Dr., Columbus

This appli

tor, both of Mentor; Douglas J. Wheeler, Cleveland Heights;
Andrew J. Niksa, Painesville; Thomas J. Schne, Huntsburg;
homas R. Turk, Mentor, all of Ohio, assi
ns Corporation, Boca Raton, Fla.

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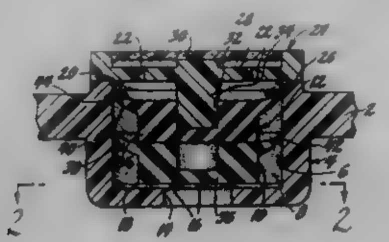
ambient atmosphere when the gas pressure in said compartment is low the improvement wherein said means comprises.
- a housing having an inner wall defining a chamber;
- an inlet to said chamber from said compartment,
- an outlet from said chamber to the ambient atmosphere; and
- check/relief valve means intermediate said inlet and outlet for separately controlling the venting and resealing pressures at predetermined levels, said valve means comprising a first sealing member adapted to open when the gas pressure in said compartment rises above said predetermined venting pressure, and a second sealing member adapted to close and reseal said compartment when the pressure within said compartment drops to said predetermined resealing pressure;



whereby positive resealing and isolation of said compartment near said predetermined venting pressure is achievable totally independently of the resealing characteristics of the first sealing member.

[redacted]

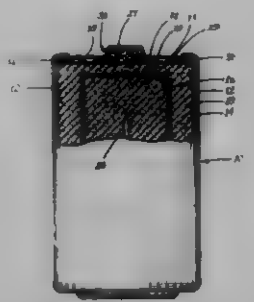
CELL CIRCUIT INTERRUPTER

Gary R. Tucholski, Parma, Ohio, assignor to Eveready Battery Company, St. Louis, Mo.

Filed Nov. 23, 1987, Ser. No. 123,750

Int. Cl.⁴ H01M *2/34*

U.S. Cl. 429—61 29 Claims



1. A galvanic cell comprising a conductive container open at one end and closed at the opposite end and including in said container a positive electrode, a negative electrode and an electrolyte with said container being in electrical contact with one of said electrodes; a cover mounted over said open end of said conductive container, said cover being secured to and electrically insulated from said conductive container and in electrical contact with the other electrode; a conductive member, said conductive member comprising a central portion and a peripheral flange portion and said central portion being in electrical contact with said peripheral flange portion, said central portion being secured by electrically insulating means [redacted] with said peripheral flange portion being secured to and electrically connected to the external peripheral area of the closed end of said container thereby adapting said central portion of [redacted] electrical contact with said container; and wherein said central portion will separate from said peripheral flange portion of the said conductive member when the center area of the closed end of said container bulges a predetermined amount thereby electrically isolating the central portion terminal from the electrode in electrical contact with said container

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4,756,984

ACTIVATABLE BATTERY USING THE LI/SO₂CL₂ COUPLE

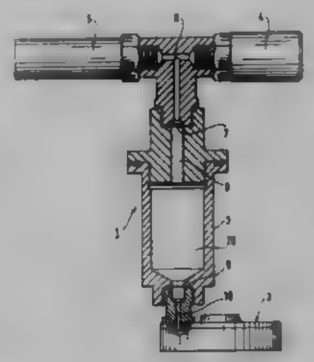
Jean-Pierre Descroix, Fontenay Sous Bois; Véronique Danel, Rosny Sous Bois, and André Petit, Le Raincy, all of France, assignors to Saft, S.A., Romainville, France

Filed Jan. 30, 1987, Ser. No. 8,668

Claims priority, application France, Feb. 4, 1986, 86 01492

Int. Cl.⁴ H01M *6/14*

U.S. Cl. 429—116 3 Claims



1. An activatable battery using the Li/SO_2Cl_2 couple for providing rapid discharge at high current densities of about 100 mA/cm^2, the battery comprising a housing containing a plurality of electrically connected battery cells, each cell comprising a lithium anode, a separator, and a cathode, together with an electrolyte tank connected to the housing and containing an electrolytic salt selected from the group consisting of $AlCl_3$ and $LiAlCl_4$, the salt being dissolved in SO_2Cl_2, and activation means for introducing said electrolyte into said housing, said electrolyte also serving as the positive active material, the battery including the improvement whereby said electrolyte additionally contains bromine at a concentration lying in the range 0.1 moles per liter to 1 mole per liter of electrolyte, with the bromine acting as a catalyst and not as a depolarizer.

[redacted]

[redacted]

Satoshi Haneda; Hisashi Shoji, and Seiichiro Hiratsuka, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 13,200, Feb. 9, 1987, abandoned, which is a continuation of Ser. No. 770,302, Aug. 27, 1985, abandoned.

This application Aug. 4, 1987, Ser. No. 82,972

Claims priority, application Japan, Aug. 30, 1984, 59-181087; [redacted]

Int. Cl.⁴ G03G *13/01*

U.S. Cl. 430—42 28 Claims

1. A multicolor image forming method comprising forming a first latent image by uniformly charging an image retainer having a photosensitive layer and exposing said first latent image using a first light, forming a first toner image by developing said first latent image with a dry type first color toner, forming a second latent image by uniformly re-charging said image retainer in the presence of said first toner image and exposing the second image using a second light having a peak wavelength in a wavelength range wherein a spectral reflectivity of said first toner is at least 40%, and developing said second latent image with a dry type second color toner by providing a second toner layer close to said first toner developing region

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[redacted]

MIXED PIGMENT SYSTEM FOR MODULATION OF [redacted]

George A. Gibson, Endwell, N.Y., assignor to Savin Corporation, Stamford, Conn.

Filed Sep. 3, 1986, Ser. No. 903,368

Int. Cl.⁴ G03G *9/12*

U.S. Cl. 430—114 12 Claims

1. An electrophotographic liquid toner composition having a lower saturation density comprising a toner particle formed from a resin, a solid pigment, and a transparent filler, said pigment and said transparent filler having similar surface energies such that they impart similar triboelectric charging properties to said composition, and said composition is further characterized in that the triboelectric properties of said composition are substantially equivalent to the triboelectric properties of a reference composition in which said filler is not present and in which the combined amount of said filler and said pigment is equal to the amount of pigment in said reference composition, and in that said transparent filler lowers the saturation density of said composition so that the saturation density of said composition is lower than the saturation density of said reference composition.

[redacted]

[redacted]

Shuichi Maeda, Saitama; Yutaka Kurose, Kawasaki, and Tetsuo [redacted]

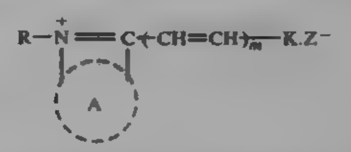
Filed Nov. 25, 1986, Ser. No. 934,694

Claims priority, application Japan, Nov. 27, 1985, 60-265017; Dec. 5, 1985, 60-274234; Mar. 19, 1986, 61-59285

Int. Cl.⁴ G03C *1/72, 5/16;* G11B *7/24*

U.S. Cl. 430—270 21 Claims

1. An optical recording medium adapted to record information by irradiating said recording medium comprising a support having provided thereon a recording layer containing a dye, with a focused laser beam, said dye undergoing thermal changes to thereby make a partial difference in reflectance on the recording medium, and for reproducing the recorded information by reading the difference in reflectance, which comprises a naphthostyril dye represented by formula (I):



wherein K represents a substituted or unsubstituted aromatic amine residue; R represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aryl group, or a substituted or unsubstituted allyl group; Z^- represents an anion; ring A represents a substituted or unsubstituted naphthalene ring; and m represents 1 or 2.

4,756,988

MULTILAYER DRY-FILM NEGATIVE-ACTING PHOTORESIST

William L. Kausch, Cottage Grove, and John P. Vikesland Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 29, 1982, Ser. No. 428,466

Int. Cl.⁴ G03C *1/94, 5/00, 1/68*

U.S. Cl. 430—271 9 Claims

1. A dry-film, negative-acting, laminable photoresist of at least two layers comprising:
- (a) a first layer of a negative-acting photosensitive resist composition comprising (1) an ethylenically unsaturated acrylic or methacrylic polymerizable oligomer, dimer or monomer and (2) a photosensitive free radical generator, said first layer becoming less soluble in an aqueous alkaline solution or organic solvent after exposure to actinic radiation, and
- (b) a laminable second layer, adjacent and adhered to a surface of said first layer, of a laminable crosslinked or crosslinkable organic polymer which is soluble in an aqueous alkaline solution or organic solvent, wherein said organic polymer comprises an acrylic polymer.

4,756,989

[redacted] HIGH-ENERGY BEAM

Hideo Ai; Nobuo Nakazaki, and Masaharu Miyao, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, [redacted]

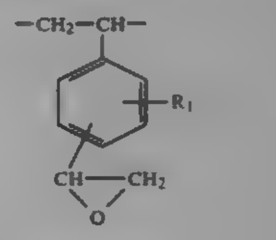
Filed Jul. 10, 1985, Ser. No. 753,626

Claims priority, application Japan, Jul. 11, 1984, 59-142233; Jul. 24, 1984, 59-153372; Dec. 18, 1984, 59-265272; Dec. 18, 1984, 59-265273; Dec. 18, 1984, 59-265274; May 10, 1985, 60-99082

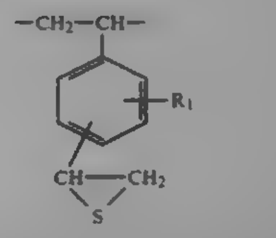
Int. Cl.⁴ G03C *1/94, 1/76;* C08F *8/08, 8/34*

U.S. Cl. 430—272 32 Claims

1. An image-forming material sensitive to high-energy beams selected from the group consisting of ultraviolet rays, deep ultraviolet rays, gamma-rays, X-rays and electron beams, comprising:
- a substrate suitable for a resist layer selected from the group consisting of an aluminum foil and a silicon substrate; and
- a resist layer disposed on said substrate containing a copolymer consisting of from 1 to 99 mole-% of recurring structural units selected from the group consisting of A and A' and mixtures thereof and 1 to 99 mole-% of recurring structural units selected from the group consisting of B and mixtures thereof having a number-average molecular weight of 500 to 1,000,000:



[A]



[A']

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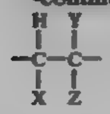


wherein,

R$_1$ of the formulas A and A' represents a hydrogen atom, halogen atom, or an alkyl group having 1 to 6 carbon atoms, said substituent groups R$_1$, epoxy group, and thiiranyl group being attached to the position ortho, meta, or para to the carbon atom in the main chain;

X, Y, and Z of the formula B represent each a hydrogen atom, halogen atom, cyano group, alkyl group having 1 to 6 carbon atoms, halogenated alkyl group having 1 to 6 carbon atoms, aryl group having 6 to 30 carbon atoms and bearing a substituent alkyl or halogenated alkyl group having 1 to 6 carbon atoms, aryl group having 6 to 30 carbon atoms, —COOR$_2$, —COR$_2$, —O—COR$_2$ (wherein R$_2$ represents an alkyl or halogenated alkyl group having 1 to 12 carbon atoms, aryl group having 6 to 30 carbon atom, and bearing a substituent alkyl or halogenated alkyl group having 1 to 6 carbon atoms, or aryl group having 6 to 30 carbon atoms), nitro group, substituent group containing a hetero ring bearing substituent R$_3$ (R$_3$ represents a hydrogen atom, hydroxyl group, carboxyl group, halogen atom, nitro group, amino group, cyano group, alkyl or halogenated alkyl group having 1 to 6 carbon atoms, or aryl group having 6 to 10 carbon atoms), or substituent group containing a silicon atom.

4,756,990
METHOD OF EFFECTING HIGH CONTRAST DEVELOPMENT OF AN IMAGE-WISE EXPOSED PHOTOGRAPHIC SILVER HALIDE EMULSION LAYER MATERIAL

Richard A. Ooms, Mechelen, and Robert J. Pollet, Vremde, both of Belgium, assignors to AGFA-Gevaert N.V., Mortsel, Belgium

Filed Mar. 24, 1986, Ser. No. 843,281

Claims priority, application European Pat. Off., Mar. 26, 1985, [illegible]

Int. Cl.^{4} G03C *5/24, 5/30*

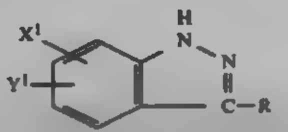
U.S. Cl. 430—438 13 Claims

1. A method of effecting high contrast development of an image-wise exposed photographic silver halide emulsion layer material, wherein the development is effected in an aqueous medium which has a pH of 10 to 12 and which contains:

(a)
- (i) hydroquinone or a substituted hydroquinone,
- (ii) an auxiliary developing agent having a developing activity such as to give when tested as the auxiliary development output in the Standard Development Test defined in the specification a relative development rate f$_x$ in the range of about 1–2,

(b) free sulphite ions derived from an inorganic sulfite in an amount of at least 5 grams per liter of said aqueous medium,

(c) an organic anti-fogging agent corresponding to one of the following general formulae (A) and (B):



(A)

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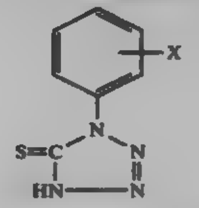


(B)

Y^1 is a nitro-substituent in the 5- or 6-position of the indazole nucleus,

X^1 is hydrogen or a sulphonic acid group in salt form,

R is hydrogen or a lower (C$_1$–C$_5$) alkyl group,

X is a substituent being or containing a carboxyl group or sulphonic acid group in salt form;

(d) a polymer containing a plurality of alkylene oxide units and having a molecular weight of at least 1500, and

(e) an inorganic alkali for imparting said pH to said medium, said ingredients (a) to (d) being present in the aqueous developing medium in such relative amounts that development therein of an exposed photographic material carrying a latent continuous tone wedge image under the same development conditions given a density versus log exposure sensitometric carve of the resulting silver wedge image would have (a) a maximum gradient (γ) of at least 5 .0 between the log exposure values measured at densities of 0.3 and 3.0 above fog on the log exposure scale and (b) a gradient (γ_p) of at least 2.0 in the toe between the log exposure values measured at densities of 0.1 and 0.6 above fog on the log exposure scale.

4,756,991
FLUORESCENT TONERS SURFACE COATED WITH POLYMERIC QUATERNARY AMMONIUM COMPOUND AND SLIP AGENT

Eugene L. Grubb, Colts Neck, N.J., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

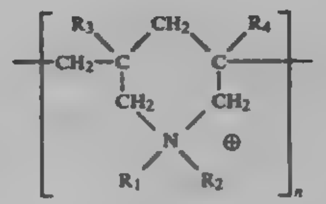
Continuation of Ser. No. 785,184, Oct. 7, 1985, abandoned. This application Mar. 11, 1987, Ser. No. 24,869

Int. Cl.^{4} G03C *5/24*

U.S. Cl. 430—449 12 Claims

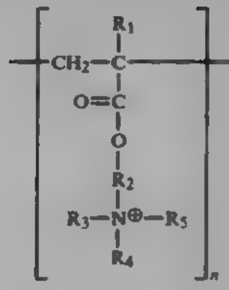
1. A dry nonelectroscopic fluorescent toner comprising fluorescent pigmented organic resin particles having a size distribution within the range of 0.2 to 30 micrometers, the improvement whereby the pigmented particles are surface coated with at least 0.1% by weight of liquid slip agent which is a silicone oil having a weight average molecular weight of about 230 to 50,000, in combination with at least 0.5% by weight of a water soluble, polymeric quaternary ammonium compound selected from the group consisting of

(a)



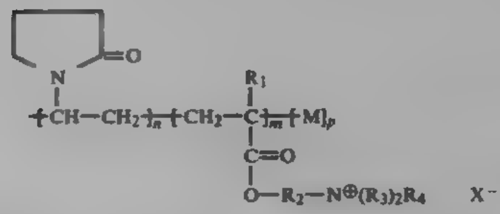
wherein R$_1$ and R$_2$ are independently selected from alkyl groups of 1 to 4 carbon atoms, R$_3$ and R$_4$are independently selected from the group consisting of H or CH$_3$, n is a number from the group consisting of 100 to 50,000, and X is a water-solubilizing anion;

(b)



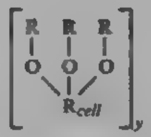
where R$_1$ is H or Ch$_3$; R$_2$ is C$_x$H$_2$x where x=2–18; R$_3$ and R$_4$ are C$_x$H$_{2X+1}$ where x=1–4; R$_5$ is the same as R$_3$ or ϕ-CH$_2$; X is a water-solubilizing anion; and n is 50 to 20,000;

(c)

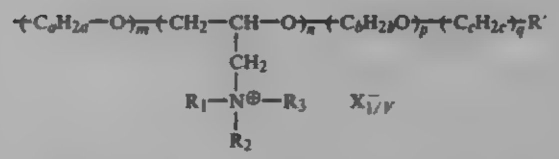


where n is 40 to 90 mole percent, m is 5 to 40 mole percent, p is 0 to 50 mole percent, and n +m +p=100; R$_1$ is H or CH$_3$; R$_2$ is C$_x$H$_2$x where x=1 to 18; R$_3$ is CH$_3$ or CH$_2$CH$_3$; R$_4$ is CH$_3$, CH$_2$CH$_3$ or ϕ-CH$_2$; X is a water-solubilizing anion and M is a vinyl monomer unit resulting from the heteropolymerization employing an optional monovinyl nonhydroxy-containing monomer different from and copolymerizable with the m or n units and a weight average molecular weight of 10,000 to 1,000,000.

(d)



where R$_{cell}$ is a residue of an anhydroglucose unit from cellulose (C$_6$H$_{10}$O$_5$), methyl cellulose, ethyl cellulose, hydroxyethylcellulose, or hydroxypropyl methyl cellulose; y is the degree of polymerization of 50–20,000 or more; and R may be the same or different and is:



$$\text{+}C_aH_{2a}-O\text{+}_m\text{+}CH_2-\underset{\underset{R_1-\overset{\oplus}{N}(R_2)-R_3}{|}}{\underset{CH_2}{\underset{|}{CH}}}-O\text{+}_n\text{+}C_bH_{2b}O\text{+}_p\text{+}C_cH_{2c}\text{+}_q R' \quad X^-_{1/V}$$

where a is an integer from 2 to 3; b is an integer from 2 to 3; c is an integer from 1 to 3; n is an integer from 1 to 3; m is an integer from 0 to 10; p is an integer from 0 to 10; and q is an integer from 0 to 1; a may be equal to or different from b; c may be equal to or different from n and m may be equal to or different from p; R' is selected from the group consisting of H, COOH, COONa, COOK, COONH$_4$ with the proviso that when q is zero, R' is H; R$_1$, R$_2$ and R$_3$ taken individually are selected from a group consisting of alkyl, aryl, aralykyl, alkaryl, cycloalkyl, alkoxyalkyl, and alkoxyaryl radicals where each of R$_1$, R$_2$ and R$_3$ can contain up to 10 carbon atoms with the proviso that when said member is an alkoxyalkyl radical there are at least two carbon atoms separating the oxygen atom from the nitrogen atom, and with the further proviso that the total number of C atoms in radicals represented by R$_1$, R$_2$ and R$_3$ is from 3 to 12 with the further proviso that when R$_1$, R$_2$ and R$_3$ are taken together the nitrogen atom to which R$_1$, R$_2$ and R$_3$ are attached can be a component of a heterocyclic ring selected from a group consisting of pyridine, alpha-methyl pyridine, 2,5-dimethyl pyridine 2,4,6-trimethyl pyridine, N-methylpiperidine, N-ethylpiperidine, N-methyl morpholine and N-ethyl morpholine; X is a water-solubilizing anion, and V is an integer equal to the valence of X; the average value of n per anhydroglucose unit of said cellulose ether is from about 0.01 to about 1, and the average value of m+p+q per anhydroglucose unit of said cellulose ether is from about 0.01 to about 4; and

(e) copolymer of hydroxethyl cellulose and diallyldimethyl ammonium chloride.

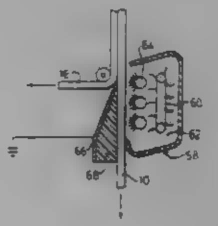
4,756,992
FULL TONE ELECTROPHOTOGRAPHIC IMAGING REPRODUCTION

Stephen Po-Ming Cheng, 155 Marlee Ave., Apt. 1006, Toronto, Ontario, Canada [illegible]

Continuation-in-part of Ser. No. 638,066, Aug. 6, 1984, and a continuation-in-part of Ser. No. 400,304, Feb. 17, 1983. This application Aug. 15, 1986, Ser. No. 897,033

Int. Cl.^{4} G03G *13/22, 15/26*

U.S. Cl. 430—54 32 Claims



1. A method of producing an electrostatic charge image comprising the sequential steps of:

(1) bringing an electrode into proximity with a photoreceptor, the photoreceptor having a dielectric substrate and a photoconductive film intimately bonded to the substrate, the electrode having means to enable an electric field to be applied across the photoreceptor and being adapted to be brought into proximity with the substrate of the photoreceptor along a length of the electrode and charging the photoreceptor with an electrostatic charge of one polarity and projecting an image of a photograph on the photoreceptor, (2) charging the photoreceptor with an electrostatic charge of opposite polarity, and (3) projecting a photographic image of the subject again on the photoreceptor whereby an electrostatic charge image is formed on the photoconductor surface.

4,756,993
ELECTROPHOTOGRAPHIC PHOTORECEPTOR WITH LIGHT SCATTERING LAYER OR LIGHT ABSORBING LAYER ON SUPPORT BACKSIDE

[illegible] Kitahashi; Kenji Sano, Koichi Kato, and Shigeru Ohno, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 27, 1987, Ser. No. 7,215

Claims priority, application Japan, Jan. 27, 1986, 61-13650; Jan. 29, 1986, 61-16674

Int. Cl.^{4} G03G *5/10*

U.S. Cl. 430—69 13 Claims

1. An electrophotographic photoreceptor for using a laser beam as a light source comprising a light-transmitting conduc-

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tive support having provided thereon a light-transmitting electrophotographic photosensitive layer, wherein said support is further provided on the side opposite to the photosensitive layer with a light scattering layer comprising an inorganic fine powder and a binder or a light absorbing layer comprising a near infrared absorbing dye and a binder.

4,756,994
PHOTOCURABLE RESIN COMPOSITION HAVING EXCELLENT ADHESION TO THE SURFACE OF A SUBSTRATE

Yasuhiko Araki, Amagasaki; Shigeru Danjo, and Hajime [illegible], both of Takatsuki, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

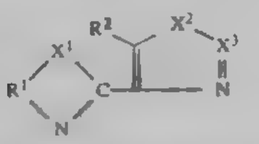
Filed Jun. 6, 1986, Ser. No. 871,759

Claims priority, application Japan, Jun. 7, 1985, 60-124960; Jun. 7, 1985, 60-124961

Int. Cl.⁴ G03C *1/94, 1/68*

U.S. Cl. 430—281 **10 Claims**

1. A photocurable resin composition comprising
- (a) 100 parts by weight of a resin having structural units derived from at least one alpha, beta-unsaturated ethylenically unsaturated monomer,
- (b) 10 to 300 parts by weight of a photopolymerizable monomer,
- (c) 0.1 to 20 parts by weight of a photopolymerization initiator, and
- (d) 0.01 to 1 part by weight of a compound represented by the following general formula (I).


(I)

wherein R^1 represents a divalent aromatic hydrocarbon group having bonds at the ortho-position to each other; R^2 represents hydrogen, an alkyl group having 1 to 4 carbon atoms, a phenyl group or an aryl group having a C_1–C_4 alkyl; X^1 represents oxygen, sulfur or N—R^5; X^2 represents oxygen, sulfur or NH; X^3 represents nitrogen or CR^6; R^5 represents hydrogen, a hydroxyl group, halogen or an alkyl group having 1 to 4 carbon atoms; and R^6 represents hydrogen or an alkyl group having 1 to 4 carbon atoms.

4,756,995
DIRECT REVERSAL SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Tetsuro Kojima; Nobuaki Inoue, and Tadashi Ikeda, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

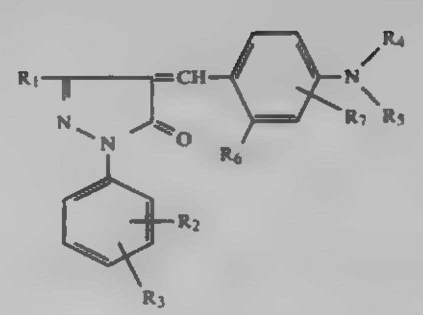
Continuation-in-part of Ser. No. 581,751, Feb. 21, 1984, abandoned. This application Nov. 21, 1985, Ser. No. 800,359

Claims priority, application Japan, Feb. 21, 1983, 58-27320

Int. Cl.⁴ G03C *1/485, 5/24*

U.S. Cl. 430—412 **17 Claims**

1. A direct reversal silver halide photographic light-sensitive material comprising:
- a support having thereon;
- a silver halide emulsion layer having silver halide grains, the surface of which is preliminarily fogged;
- a dye represented by general formula (I) showing an absorption maximum within the range of from 470 to 520 nm:


(I)

wherein R_1 represents a substituted or unsubstituted alkyl group containing 1 to 6 carbon atoms or a substituted or unsubstituted alkoxy group containing 1 to 6 carbon atoms; R_2 and R_3 each represents a hydrogen atom, a halogen atom, a substituted or unsubstituted alkyl group containing 1 to 6 carbon atoms, a substituted or unsubstituted alkoxy group containing 1 to 6 carbon atoms, a hydroxy group, a carboxyl group or its salt, or a sulfonic acid group or its salt, with at least one of R_2 and R_3 representing a sulfonic acid group or its salt; R_4 and R_5 each represents a substituted or unsubstituted alkyl group containing 1 to 6 carbon atoms; R_6 represents a substituted or unsubstituted alkyl group containing 1 to 6 carbon atoms or a substituted or unsubstituted alkoxy group containing 1 to 6 carbon atoms; and R_7 represents a hydrogen atom, a halogen atom, a substituted or unsubstituted alkyl group containing 1 to 6 carbon atoms or a substituted or unsubstituted alkoxy group containing 1 to 6 carbon atoms, said dye being contained in at least one hydrophilic colloid layer provided on said support; and

rhodium as a desensitizer.

4,756,996
PHOTOGRAPHIC PROCESSING COMPOSITION FOR PROCESSING A PHOTOSENSITIVE ELEMENT OF THE SELF-DEVELOPING TYPE

Frank E. Debruyn, Jr., Abington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 3, 1986, Ser. No. 926,192

Int. Cl.⁴ G03C *5/24, 7/26, 1/08*

U.S. Cl. 430—486 **7 Claims**

1. A photographic processing composition which comprises an aqueous alkaline solution, a silver halide developing agent and a substantially water-insoluble, cationic polyoxyethylene amine containing 2 or 3 moles of ethylene oxide.

4,756,997
PHOTOGRAPHIC SILVER HALIDE DEVELOPER COMPOSITIONS AND PROCESS FOR FORMING PHOTOGRAPHIC SILVER IMAGES

Carlo Marchesano, Savona, Italy, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 21, 1987, Ser. No. 76,078

Claims priority, application Italy, Jul. 23, 1986, 21207 A/86

Int. Cl.⁴ G02C *1/06, 1/34, 1/42, 5/24*

U.S. Cl. 430—478 **25 Claims**

1. An aqueous alkaline photographic silver halide developer composition comprising a dihydroxybenzene developing agent, an auxiliary superadditive developing agent, an antifogging agent, an antioxidant compound and a buffering agent, characterized by containing a stabilizing amount of an α-ketocarboxylic acid compound.

4,756,998
POLYMERIC COUPLERS AND LIGHT-SENSITIVE PHOTOGRAPHIC SILVER HALIDE RECORDING MATERIAL CONTAINING SUCH COUPLERS

Günter Helling, Odenthal; Friedrich-Wilhelm Kunitz, Leverkusen, and Hans Langen, Bonn, all of Fed. Rep. of Germany, assignors to Agfa Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 3, 1986, Ser. No. 915,045

Claims priority, application Fed. Rep. of Germany, Oct. 15, [illegible]

Int. Cl.⁴ G03C *7/32, 7/26, 1/06*

U.S. Cl. 430—548 **8 Claims**

1. Light-sensitive photographic recording material comprising at least one light-sensitive silver halide emulsion layer and a polymer having recurrent units of a polymerised monomer K, which contains a coupler group, characterised by the additional presence of recurrent units of a monomer M which is different from the monomer K by not containing any coupling groups and contains at least one urethane and/or urea group wherein comonomers K and M are monomer units containing ethylenically unsaturated groups.

4,756,999
PHOTOTHERMOGRAPHIC MATERIALS

Steven Swain, and Ronald E. Watts, both of Bishops Stortford, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

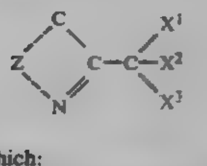
Filed Nov. 3, 1986, Ser. No. 926,646

Claims priority, application United Kingdom, Nov. 20, 1985, [illegible]

Int. Cl.⁴ G03C *1/34*

U.S. Cl. 430—613 **13 Claims**

1. A photothermographic element comprising a substrate having coated thereon a photothermographic medium comprising a binder having dispersed therein an organic silver salt or complex, a silver halide photocatalyst and a reducing agent, wherein the photothermographic medium contains as an antifoggant, in the absence of mercury compounds, an effective antifogging amount of a compound of the general formula:


(I)

in which:
- X^1 and X^2 independently represent halogen atoms,
- X^3 is selected from the group consisting of a halogen atom and an electron withdrawing substituent, and
- Z represents the necessary atoms to complete a ring system which may comprise a single ring or a fused ring system which rings may bear substituents.

4,757,000
PROCESS FOR ASSAYING ATL VIRUS ANTIBODY AND REAGENT THEREFOR

Junichi Tokmatsu, Tsuchiura; Takashi Sawada, Yatabemachi; Isao Miyoshi, and Hirokuni Taguchi, both of Kouchi, all of Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

Filed May 22, 1985, Ser. No. 736,928

Claims priority, application Japan, May 25, 1984, 59-104472

Int. Cl.⁴ G01N *33/543, 33/574*

U.S. Cl. 435—5 **4 Claims**

1. In a process for assaying an ATL virus antibody in a test specimen by a method selected from the group consisting of the enzyme linked immunosorbent assay, the radioimmunoassay and the passive hemagglutination assay, in which the test specimen and a control specimen are separately subjected to an antibody-antigen reaction using an immobilized ATL associated antigen and the extent of said reaction is determined, wherein the improvement comprises: preparing a comparative specimen by adding an ATL virus antigen to a second test specimen to bind any ATL antibodies present in said second test specimen,separately subjecting said comparative specimen to said antibody-antigen reaction using said ATL associated antigen and determining the extent of said reaction and comparing the extent of reaction of said test, control and comparative specimens as a measure of ATL virus in the test speciment.

4,757,001
METHOD OF MEASURING BIOLOGICAL LIGAND BY UTILIZING AMYLASE

Yoshihiro Ashihara, and Yasushi Kasahara, both of Tokyo, Japan, assignors to Fujirebio Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 8, [illegible], Ser. No. [illegible]

Claims priority, application Japan, Feb. 16, 1984, 59-27709; Feb. 16, 1984, 59-27710

The portion of the term of this patent subsequent to Sep. 8, 2004, has been disclaimed.

Int. Cl.⁴ G01N *33/542*

U.S. Cl. 435—7 **10 Claims**

1. A method of measuring a biological ligand (1) containing at least one antigenic determinant in a sample containing an amylase (1) derived from a higher animal which comprises:
- using an antibody against said ligand (1), an amylase (2) not contained in said sample and bound to said antibody, an amylase inhibitor of which the inhibitory activity against said amylase (1) is stronger that that against said amylase (2) and a water-insoluble macromolecular substance capable of being digested by said amylase (2);
- allowing said antibody to contact said ligand (1);
- allowing said amylase inhibitor to contact said amylase (1) and said amylase (2);
- allowing said amylase (2) to contact said macromolecular substance; and
- relating the amount of digestion of said macromolecular substance to the amount of said biological ligand (1) in said sample.

4,757,002
METHOD AND KIT FOR THE ESTIMATION OF SERUM IMMUNOGLOBULIN

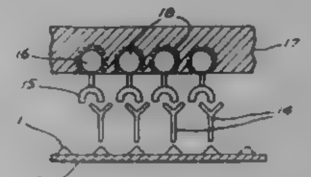
Han S. Joo, St. Paul, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

Continuation-in-part of Ser. No. 503,824, Jun. 13, 1983, Pat. No. 4,562,147. This application Dec. 30, 1985, Ser. No. 814,558

The portion of the term of this patent subsequent to Dec. 31, [illegible], has been disclaimed.

Int. Cl.⁴ G01N *33/53, 33/558;* **C12R** *1/445*

U.S. Cl. 435—7 **16 Claims**



1. A method of quantitatively estimating serum immunoglobulins in animals by reacting immunoglobulins with Staphylococcal Protein A, which method comprises:
- (A) placing a sample of blood or blood serum drawn from an animal in a sample well of a test plate comprising.
  - (1) a supporting surface,
  - (2) a coating adsorbed on said surface of Protein A antigen;
  - (3) a layer of agar overlying said Protein A antigen coating, and

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(4) a plurality of sample-receiving wells extending through the agar layer,

(B) placing a plurality of positive control sera samples of known immunoglobulin quantities from the same animal species in other sample wells of said test plate,

(C) incubating said samples to bind immunoglobulins from the samples to the Protein A antigen layer,

(D) removing the agar layer and applying a blocking serum over the Protein A antigen layer with bound immunoglobulins,

(E) applying a conjugate, an enzyme linked species specific anti-immunoglobulin or enzyme linked Protein A to said bound immunoglobulins and incubating to bind the conjugate to the immunoglobulins,

(F) applying an agar layer containing a color producing substrate for the conjugate over the bound conjugate,

(G) measuring the diameters of the resulting colored reaction zones,

(H) plotting the diameters and known immunoglobulin quantities of the control samples to form a standard line, and

(I) reading the immunoglubulin quantities of the test samples by plotting the diameters of the test samples on the standard line.

4,757,003

METHOD FOR THE DETECTION OF CANCER

Makoto Matsumoto; Yukio Takei, both of [illegible]; Kenji Arai, Hamamatsu; Hidemi Ishikawa, Shizuoka; Kunio Kurata, Matsudo; Kiyoshi Sekiguchi, Kashiwa; Akio Myoga, Yokohama, and [illegible] Obata, Kashiwa; all of Japan, assignors to Dainabot Co., Ltd., Japan

Continuation of Ser. No. [illegible], Mar. 7, 1984, abandoned. This application May 8, 1986, Ser. No. 861,086

Claims priority, application Japan, Sep. 9, 1983, 58-165223

Int. Cl.⁴ G01N *33/53, 33/543;* C07H *1/00*

U.S. Cl. 435—7 13 Claims

1. A process for the detection of cancer which comprises:

(a) competitively reacting a first glycolipid present in blood, thoracic cavity fluid, abdominal dropsy, or urine and a labelled second glycolipid, or labelled oligosaccharide, with an antibody specific to said first glycolipid, wherein said second glycolipid is the same as said first glycolipid and said oligosaccharide is a saccharide chain portion of said first glycolipid, and said first glycolipid being selected from the group consisting of

(1) asialo GM_1: galactosyl-N-acetylgalactosaminyl-galactosyl-glucosyl-ceramide;

(2) asialo GM_2: N-acetylgalactosaminyl-galactosyl-glucosyl-ceramide;

(3) fuco GA_1: fucosyl-galactosyl-N-acetylgalactosaminyl-galactosyl-glucosyl-ceramide; and

(4) paragloboside: galactosyl-N-acetylglucosaminyl-galactosyl-glucosyl-ceramide;

(b) separating the labelled second glycolipid, or labelled oligosaccharide, having conjugated with said antibody, from the labelled second glycolipid, or labelled oligosaccharide, which has not conjugated with said antibody; and

(c) determining the activity of at least one separated fraction.

4,757,004

CHROMATOGRAPHIC DEVICE HAVING MODIFIED EDGES

Thomas M. Houts, Mountain View, and Edwin F. Ullman, Atherton, both of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Mar. 16, 1984, Ser. No. 591,155

Int. Cl.⁴ G01N *33/53*

U.S. Cl. 435—7 20 Claims

1. A device for use in a chromatographic system wherein a component of a mixture is partitioned between a liquid phase and an immobile phase, said device being comprised of a chromatographic material having a longitudinal edge, wherein in said system said component traverses at least a portion of said chromatographic material and said longitudinal edge includes means for controlling the shape of the front of the traversing component.

6. The device of claim 1 wherein a member of a specific binding pair is non-diffusively bound to the chromatographic material.

7. An immunochromatographic device comprising the device of claim 6 wherein the member of the specific binding pair is an antigen or an antibody.

9. The immunochromatographic device of claim 7 wherein the member of a signal producing system is an enzyme.

4,757,005

METHOD AND CELL LINE FOR OBTAINING PLASMINOGEN ACTIVATORS

Sham Y. Chan, Osceola, Ind., assignor to Miles Inc., Elkhart, Ind.

Continuation-in-part of Ser. No. 601,868, Apr. 19, 1984, abandoned. This application Feb. 22, 1985, Ser. No. 704,593

Int. Cl.⁴ C12P *21/00;* C12N *5/00*

U.S. Cl. 435—68 17 Claims

1. A method for increasing the yield of plasminogen activator obtained from plasminogen activator-producing mammalian tumor cells which comprises the steps of:

(a) growing said cells in a suitable growth medium supplemented with fetal calf serum, said suitable growth medium composed of a mixture of Waymouth's MB752/1, Dulbecco Minimal Essential Medium and Ham's F-12 medium in a ratio (by weight) of from about 1:1:1 to about 3:1:2, respectively,;

(b) passing said cells through a series of said suitable growth media containing decreasing amounts of fetal calf serum, said media supplemented with the growth factors fetuin, bovine serum albumin, insulin, transferrin, 5α-dihydrotestosterone and dexamethasone;

(c) growing said cells to confluency in said suitable growth medium essentially free of fetal calf serum and supplemented with said growth factors, said cells producing plasminogen activator at levels greater than that of the initial plasminogen activator-producing cells; and

(d) recovering therefrom said plasminogen activator.

4,757,006

HUMAN FACTOR VIII:C GENE AND RECOMBINANT METHODS FOR PRODUCTION

John J. Toole, Jr., Brookline, and Edward Fritsch, Concord, both of Mass., assignors to Genetics Institute, Inc., Cambridge, Mass.

Filed Oct. 28, 1983, Ser. No. 546,650

Int. Cl.⁴ C12P *21/02;* C12Q *1/68;* C12N *15/00, 5/00, 1/00;* C07H *15/12*

U.S. Cl. 435—70 8 Claims

1. An isolated recombinant vector containing DNA coding for human factor VIII:C, comprising a polydeoxyribonucleotide having the sequence:

5' CGC AGC TTT CAG AAG AAA ACA CGA CAC
TAT TTT ATT GCT GCA GTG GAG AGG 3'

4,757,007

PROCESS FOR PREPARING HYDROLYZED PRODUCTS OF SOY PROTEIN

Masaaki Satoh; Yukio Matsumoto; Koji Hasegawa; Gyota Taguchi, and Hiroshi Mimoto, all of Yokohama, Japan, assignors to The Nisshin Oil Mills, Ltd., Tokyo, Japan

Filed Feb. 22, 1985, Ser. No. 704,693

Claims priority, application Japan, Feb. 22, 1984, 59-30396

Int. Cl.⁴ C07K *3/12*

U.S. Cl. 435—69 18 Claims

1. A process for preparing hydrolyzed products of soy protein which comprises

(a) partially hydrolyzing soy protein with a protease to obtain a solution containing two parts of said hydrolyzed products having differing solubilities in 5% trichloroacetic acid aqueous solution, wherein one of said two parts has a solubility of 10–40% by weight in 5% trichloroacetic acid and the other of said two parts has a solubility of 70% or more by weight in 5% trichloroacetic acid, and

(b) separating said two parts from each other by steps consisting essentially of neutralizing the solution containing two parts of said hydrolyzed products to pH 6.8–7.0, removing insoluble matter from said solution, and separating said hydrolyzed products into said two parts with an ultrafiltration membrane.

4,757,008

ENZYME IMMOBILIZATION IN A MACROPOROUS NON-IONIC RESIN

Lawrence F. Reverman, Elkhart, Ind., assignor to Miles Inc., Elkhart, Ind.

Filed Feb. 24, 1986, Ser. No. 831,860

Int. Cl.⁴ C12P *19/24;* C12N *11/08, 11/06, 11/04*

U.S. Cl. 435—94 13 Claims

1. A method for the preparation of an enzyme containing conjugate which comprises:

(a) providing an aqueous dispersion of enzyme containing cells of a microorganism having reactive amine groups as part of its cellular makeup;

(b) contacting the dispersion with a macroporous non-ionic resin under reduced pressure below atmospheric to cause the cells to become incorporated into the pores of the resin thereby forming a resin/cell complex; and

(c) contacting the resin/cell complex with a multi-functional, amine reactive material thereby to fix the cells and prevent their escape from the pores of the resin.

4,757,009

RECOMBINANT DNA HAVING A PHOSPHOENOL PYRUVATE CARBOXYLASE GENE INSERTED THEREIN, BACTERIA CARRYING SAID RECOMBINANT DNA AND A PROCESS FOR PRODUCING AMINO ACIDS USING SAID BACTERIA

Konosuke Sano, Tokyo; Koichi Ito, Kawasaki; Kiyoshi Miwa, Matsudo, and Shigeru Nakamori, Yokohama, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Filed Aug. 28, 1984, Ser. No. 645,107

Claims priority, application Japan, Aug. 29, 1983, 58-157512

Int. Cl.⁴ C12P *13/04, 13/20;* C12N *15/00, 1/20, 1/00;* C12R *1/13, 1/15*

U.S. Cl. 435—106 7 Claims

3. A process for producing an amino acid by fermentation, which comprises:

cultivating in a culture medium a Corynebacterium or Brevibacterium (1) carrying a recombinant DNA molecule comprising a plasmid having operationally inserted therein a gene coding for phosphoenol pyruvate carboxylase, said gene being a chromosomal gene isolated from a Coryneform strain or a Brevibacterium strain carrying a PEPC gene and (2) having a chromosomal gene coding for said amino acid, and

isolating said amino acid from said culture medium.

4,757,010

PRODUCTION OF CLOSTRIDIUM ACETOBUTYLICUM MUTANTS OF HIGH BUTANOL AND ACETONE PRODUCTIVITY, THE RESULTANT MUTANTS AND THE USE OF THESE MUTANTS IN THE JOINT PRODUCTION OF BUTANOL AND ACETONE

Monique Hermann, Paris; Francoise Fayolle, Malakoff, and Rémy Marchal, Chatou, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Continuation of Ser. No. [illegible], Mar. 8, 1983, abandoned. This application Dec. 19, 1985, Ser. No. 810,841

Claims priority, application France, Mar. 8, 1982, 82 03960

Int. Cl.⁴ C12P *7/28, 7/16;* C12N *1/20;* C12R *1/145*

U.S. Cl. 435—150 3 Claims

1. In a process comprising the production of an acetone-butanol mixture by the fermentation of sugars, the improvement wherein the fermentation is conducted with a microorganism of the strain of *Clostridium acetobutylicum* ATCC 39 058.

4,757,011

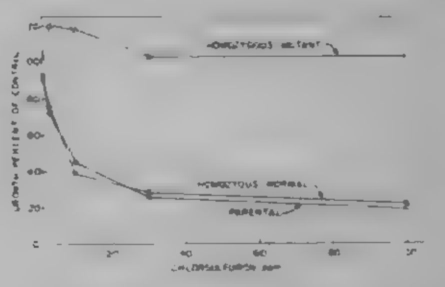
HERBICIDE RESISTANT TOBACCO

Roy S. Chaleff, and Thomas B. Ray, both of Wilmington, Del., assignors to E. I. Du Pont De Nemours and Company, Wilmington, Del.

Filed Sep. 30, 1983, Ser. No. 537,560

Int. Cl.⁴ A01H *1/06, 1/00, 1/04;* C12N *5/00*

U.S. Cl. 435—172.1 12 Claims



1. A process for producing mutant *Nicotiana tabacum* plants having stable, heritable resistance to herbicidally-effective N-(heterocyclicaminocarbonyl) arylsulfonamide compounds, comprising:

(a) propagating cell cultures of *Nicotiana tabacum* under plant cell culture conditions;

(b) exposing the cell cultures to a selective medium comprising a herbicidally-effective N-(heterocyclicacaminocarbonyl) arylsulfonamide compound present at a concentration inhibitory or lethal to normal cells;

(c) isolating mutant cell lines capable of sustained growth in the selective medium; and

(d) regenerating from the mutant cell lines reproductively competent plants that express resistance to said N-(heterocyclicacaminocarbonyl) arylsulfonamide compounds.

6. A first generation hybrid tobacco plant having resistance to a herbicidally-effective N-(heterocyclicaminocarbonyl)arylsulfonamide compound, the hybrid tobacco plant having been grown from seed from cross-pollination of parent plants, wherein at least one parent plant has gametes with nuclei which carry at least one dominant or semidominant gene con-

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ferring resistance to a herbicidally-effective sulfonamide compound.

4,757,012

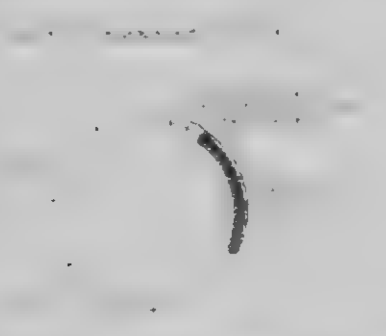
ASCORBIC ACID INTERMEDIATES AND PROCESS ENZYMES

David A. Estell, Mountain View; Robert A. Lazarus, San Mateo; David R. Light, San Francisco; Jeffrey V. Miller, Belmont, and William H. Rastetter, San Mateo, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation-in-part of Ser. No. 508,628, Jun. 28, 1983, abandoned. This application Jun. 14, 1984, Ser. No. 620,651

Int. Cl.⁴ C12N *15/00, 09/04;* C12P *07/60*

U.S. Cl. 435—172.3 5 Claims



1. A process for producing a recombinant microorganism capable of converting glucose to 2-KLG which comprises transforming a host cell capable of converting glucose to 2,5-DKG but lacking the ability to convert 2,5-DKG to 2-KLG with an expression vector which encodes 2,5-DKG reductase.

4,757,013

CLONING VEHICLES FOR POLYPEPTIDE EXPRESSION IN MICROBIAL HOSTS

Masayori Inouye, Setauket, N.Y., and Yoshihiro Masui, Toyonaka, Japan, assignors to The Research Foundation of State University of New York, Albany, N.Y.

Continuation-in-part of Ser. No. 607,224, May 4, 1984, abandoned, which is a continuation-in-part of Ser. No. 494,040, Jul. 25, 1983, Pat. No. 4,643,964. This application Jun. 26, 1986, Ser. No. [illegible]

Int. Cl.⁴ C12P *21/00, 21/02;* C12N *15/00, 1/20*

U.S. Cl. 435—172.3 15 Claims

1. A recombinant plasmid suited for use as a cloning vehicle for expression of at least one polypeptide in a transformed bacterial host, said plasmid comprising a first DNA sequence coding for the promoter of the lipoprotein gene of *Escherichia coli,* linked in reading phase with (a) a second DNA sequence located downstream of said lipoprotein promoter and coding for the segment between positions −40 and +65 of the β-galactosidase promoter-operator of *Escherichia coli,* (b) a third DNA sequence located downstream of said second DNA sequence and coding for the signal peptide of the ompA gene of *Escherichia coli,* (c) a fourth DNA sequence located downstream of said third DNA sequence and coding for the amino acid sequence of said at least one polypeptide, said plasmid also comprising a fifth DNA sequence coding for the lacI gene of *Escherichia coli.*

4,757,014

IMMOBILIZATION OF BIOLOGICALLY ACTIVE PROTEIN ON A POLYMERIC FIBROUS SUPPORT

Carol E. Hendrickson, St. Joseph Township, St. Croix County, Wis.; Rosa Uy, and Arlene J. Mencke, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 8, 1985, Ser. No. 796,274

Int. Cl.⁴ C12N *11/08, 11/14;* G01N *33/545;* C07K *17/08*

U.S. Cl. 435—180 27 Claims

1. A composite article comprising in sequence:

(a) a polymeric fibrous support having a large surface area and having on its surface a layer of inorganic oxide having a uniform thickness when dried in the range of 2 to 500 nm to provide binding sites thereon,

(b) a layer of a protein immobilizer compound comprising a polymer or a silane-functional compound adhering to said layer of inorganic oxide and capable of immobilizing proteins, and

(c) a biologically active protein bound to said layer of protein immobilizer compound.

4,757,015

PHENYLALANINE AMMONIA LYASE-PRODUCING STRAINS

Steve A. Orndorff, Rockville, and Don R. Durham, Gaithersburg, both of Md., assignors to Genex Corporation, Gaithersburg, Md.

Filed Aug. 11, 1986, Ser. No. 895,309

Int. Cl.⁴ C12P *13/22;* C12N *11/00, 9/88, 1/16;* C12R *1/645*

U.S. Cl. 435—108 8 Claims

1. A *Rhodotorula graminis* strain having the identifying characteristics of strain GX 6000, its progeny or phenylalanine ammonia lyase (PAL)-producting mutants thereof.

4,757,016

PROCESS FOR STABILIZING THE ACTIVITY OF PEROXIDASE IN SOLUTION

Dagmar Klenner; Gerd Kleinhammer, both of Tutzing, and Rolf Deeg, Bernried, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Mar. 4, 1986, Ser. No. 835,896

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1985, 3511327

Int. Cl.⁴ C12N *9/96, 9/08;* C12Q *1/28*

U.S. Cl. 435—188 12 Claims

1. A process for stabilizing the activity of peroxidase enzyme in solution wherein the peroxidase is used as a conjugate with an immunologically effective substance by the addition of a specific stabilizer comprising adding to the enzyme in solid or dissolved form as the activity stabilizer, aminopyrine in an amount of from 0.0005 to 2% by weight, referred to the solution.

4,757,017

IN VITRO CELL CULTURE SYSTEM

Herman S. Cheung, Waukesha, Wis., assignor to MCW Research Foundation, Inc., Milwaukee, Wis.

Filed Sep. 14, 1984, Ser. No. 651,392

Int. Cl.⁴ C12N *5/00*

U.S. Cl. 435—240.23 7 Claims

1. In a method for in vitro culture of anchorage-dependent mammalian cells on the surface of a solid substrate immersed in a nutrient growth medium, the improvement comprising:

providing a solid substrate consisting of a calcium compound which is mitogenic and non-toxic to the anchorage dependent mammalian cells and of a size sufficient to provide support;

seeding the cells on the solid substrate;

adding nutrient growth medium to cover the solid substrate and the cells; and

growing the cells on the solid substrate for a time sufficient to grow multi-cell thick layers of the cells on the solid substrate.

4,757,018

MYELOMA CELL LINES AND USES THEREOF

Bruce L. Brown, Knoxville, Md., assignor to Hazleton Biotechnologies, Inc., Vienna, Va.

Filed Feb. 11, 1985, Ser. No. 700,199

Int. Cl.⁴ C12N *5/00, 15/00*

U.S. Cl. 435—240.2 2 Claims

1. A cell line having the identifying characteristics of Myeloma Cell Line HAZ653-SF, ATCC CRL8714, and any cell lines derived therefrom.

4,757,019

METHOD FOR OBTAINING PURE, STABLE TISSUE CULTURES OF HUMAN MELANOCYTES

Magdalena Eisinger, Demarest, and Olga Marko, Paramus, both of N.J., assignors to Sloan-Kettering Institute for Cancer Research, New York, N.Y.

Continuation of Ser. No. 469,854, Feb. 25, 1983, abandoned. This application Mar. 27, 1986, Ser. No. 845,479

Int. Cl.⁴ C12N *5/00;* C12R *1/91*

U.S. Cl. 435—240.21 16 Claims

1. Method for producing a stable, long-term culture of purified human melanocytes in tissue culture from a mixture of epidermal cells containing keratinocytes, melanocytes, Langerhans cells and fibroblast which comprises:

(a) culturing the mixture of epidermal cells in the presence of a tumor growth promoting substance selected from the group consising of phorbol esters, indole alkaloids, polyacetates, and mixtures thereof, for a time sufficient to increase the numbers of melanocytes, decrease the number of keratinocytes, and remove the Langerhans cells from the mixture wherein the resulting epidermal cells, free of Langerhans cell, are attached to the growth vessel,

(b) contacting the cultivated attached epidermal cell mixture with trypsin under appropriate conditions and for a time sufficient to permit detachment and separation of the melanocytes from attached keratinocytes in the attached epidermal cells,

(c) growing the detached and separated melanocytes in a culture medium containing the tumor growth promoting substance in an amount sufficient to enhance melanocyte growth and additionally containing an amount of growth suppressor sufficient to suppress the growth of fibroblast cells,

(d) removing fibroblasts from the cultured melanocytes by immunoreactive binding of the melanocytes with monoclonal antibody for melanocytes, and

(e) Separating a melanocyte-monoclonal antibody product from fibroblasts.

4,757,020

NOVEL EXPRESSION PLASMIDS CONTAINING THE FULL CDNA SEQUENCE OF CALF PROCHYMOSIN

Teruhiko Beppu, 5-21, Horinouchi-1-chome, Suginami-ku, Tokyo; Takeshi Uozumi; Katsuhiko Nishimori, both of Tokyo; Norio Shimizu, Hitachi; Yoshiyuki Kawaguchi, Tokyo, and Noboru Yanagida, Yokohama, all of Japan, assignors to Teruhiko Beppu, Tokyo, Japan

Filed Mar. 1, 1985, Ser. No. 706,979

Claims priority, application Japan, Mar. 9, 1984, 59-44901

Int. Cl.⁴ C12N *1/20, 15/00, 1/00*

U.S. Cl. 435—253 3 Claims

1. A recombinant expression plasmid comprising the full cDNA sequence of prochymosin and an *E. coli* trp promoter-operator system and capable of expressing the full-length cDNA of prochymosin under the control of the trp promoter, characterized in that an ATG initiation codon is joined to the N-terminus of said cDNA and that the base pairs between the SD sequence and the ATG initiation codon are

GTATCGAT
CATAGCTA

4,757,021

RECOMBINANT PLASMID AND MICROBIAL STRAIN TRANSFORMED BY SAID PLASMID

Haruhide Kawabe; Kazumoto Hirabayashi; Hazime Horii; Hirofumi Arimura, all of Osaka; Masayuki Nishida, and Tadakazu Suyama, both of Kyoto, all of Japan, assignors to Green Cross Corporation, Osaka, Japan

Filed Nov. 5, 1985, Ser. No. 795,144

Claims priority, application Japan, Nov. 5, 1984, 59-232683

Int. Cl.⁴ C12N *1/18, 15/00, 1/00*

U.S. Cl. 435—256 8 Claims

1. A recombinant plasmid wherein at least two DNA fragments each containing a Baker gene and a Charlie gene of the yeast 2 μm circular plasmid are incorporated into a plasmid containing genes encoding a physiologically active substance.

4,757,022

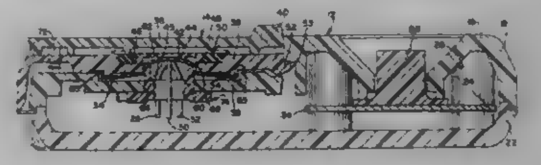
BIOLOGICAL FLUID MEASURING DEVICE

Mark C. Shults, Madison; Christopher C. Capelli, Kenosha, and Stuart J. Updike, Madison, all of Wis., assignors to Markwell Medical Institute, Inc., Racine, Wis.

Continuation of Ser. No. 852,346, Apr. 15, 1986, which is a division of Ser. No. 852,343, Apr. 15, 1986, and a continuation-in-part of Ser. No. 774,330, Sep. 10, 1985. This application Nov. 19, 1987, Ser. No. 122,395

Int. Cl.⁴ C12M *1/34*

U.S. Cl. 435—291 29 Claims



1. A biological fluid measuring device comprising:

(a) a main housing including electronic circuit means and at least two electrodes; and

(b) a cartridge having a membrane and being removably mounted on the housing with the membrane operably associated with the electrodes, the cartridge including means for protecting the membrane when not in use.

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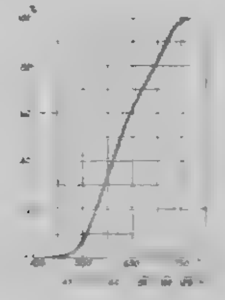
4,757,023
METHOD AND EQUIPMENT FOR THE SIMULATED DISTILLATION BY MEANS OF GAS CHROMATOGRAPHY WITH NON VAPORIZING DIRECT INJECTION

Sorin Trestianu, Brussels, Belgium; Fausto Munari, and Carlo Saravalle, both of Milan, Italy, assignors to Carlo Erba Strumentazione S.p.A., Italy
Filed Dec. 19, 1985, Ser. No. 810,927
Claims priority, application Italy, Dec. 28, 1984, 24278 A/84
Int. Cl.⁴ G01N *30/02, 21/00*
U.S. Cl. 436—154 **9 Claims**



1. A method of the simulated distillation of petroleum products utilizing apparatus adapted for chromatographic analysis including a capillary column wherein said capillary column has an inner diameter ranging between 0.2 and 0.6 mm and a length between 1 and 10 m, said capillary column having therein a thin film stationary phase less than or equal to 0.2 μm, said capillary column having a first end and a second end and having associated with said first end of said capillary column a direct nonvaporizing cold on-column injector and an oven in which said capillary column is housed, said oven being programmable to reach temperatures over 400° C. at a speed equal to at least 5° C. per minute and wherein said apparatus has a flame ionization detector connected to said second end of said column, said method comprising the steps of:

(a) injecting into said column utilizing said direct cold on-column injector an appropriately diluted sample of a sample petroleum product;
(b) performing a gas chromatographic analysis on said sample petroleum product using said apparatus at a preprogrammed temperature having a temperature end point greater than 400° C.;
(c) converting said time axis of said chromatogram obtained from said gas chromatographic analysis of said sample petroleum product into a boiling point axis by using a standard calibration mixture which generates a standard curve; and
(d) integrating in slices the surface between the sample elution curve and the chromatogram base line to obtain a simulated distillation boiling point distribution curve.

4,757,024
IMMUNE COMPLEX DETECTION METHOD AND ARTICLE USING IMMUNOLOGICALLY NON-SPECIFIC IMMUNOGLOBULINS

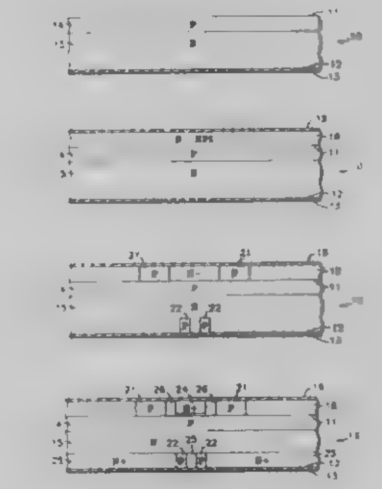
Michael D. Roper, Lafayette, Colo., assignor to Biostar Medical Products, Inc., Boulder, Colo.
Continuation-in-part of Ser. No. 740,018, May 31, 1985, abandoned. This application Aug. 8, 1985, Ser. No. 763,955
Int. Cl.⁴ G01N *33/564, 33/544*
U.S. Cl. 436—507 **6 Claims**

3. A method of performing an assay for immune complexes from at least one serum comprising the steps of:

contacting a support with a solution containing an alkaline treated gammaglobulin derived from animals not immunized against any antigenic determinant;
fixing the selected gammaglobulin to the support to form a coating thereon;
removing any excess solution from the support,
contacting the coating with a fluid to be tested for the presence of immune complexes,
facilitating adherence of the immune complexes present in said fluid to the Fc portion of the said selected gammaglobulin present in said coating, and
detecting the immune complexes retained by said coating.

4,757,025
METHOD OF MAKING GATE TURN OFF SWITCH WITH ANODE SHORT AND BURIED BASE

John R. Bender, Mesa, Ariz., assignor to Motorola Inc., Schaumburg, Ill.
Continuation of Ser. No. 715,715, Mar. 25, 1985, abandoned. This application Nov. 28, 1986, Ser. No. 936,919
Int. Cl.⁴ H01L *21/38, 21/441*
U.S. Cl. 437—6 **6 Claims**

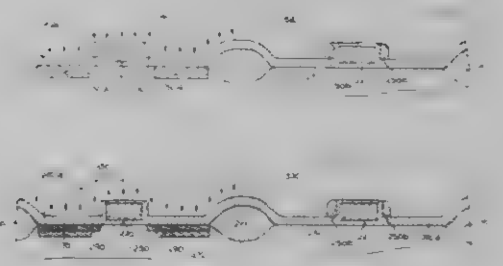


1. A method of manufacturing a gate-controlled switch comprising the steps of:

providing a body of semiconductor material of a second conductivity type, said body having a first major surface and a second major surface opposite said first major surface;
forming a base layer of semiconductor material of a first conductivity type at said first major surface of said body;
growing a layer of epitaxial semiconductor material of said second conductivity type overlaying said first major surface of said body;
forming a gate region of said first conductivity type in said layer of epitaxial material, said gate region being contiguous with said base layer;
forming an anode region of said first conductivity type in said body, said anode region being contiguous with said second major surface of said body;
forming a cathode region of said second conductivity type in said layer of epitaxial material, said cathode region being separated from said gate region; and
forming an anode shorting region of said second conductivity type in said body, said anode shorting region being contiguous with said second major surface of said body and disposed about a portion of said anode region.

4,757,026
SOURCE DRAIN DOPING TECHNIQUE

Been-Jon Woo, Saratoga; Mark A. Holler, Palo Alto; Ender Hokelek, Santa Clara, and Sandra S. Lee, Los Altos, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.
Division of Ser. No. 926,733, Nov. 4, 1986. This application Sep. 16, 1987, Ser. No. 97,539
Int. Cl.⁴ H01L *21/265*
U.S. Cl. 437—29 **2 Claims**



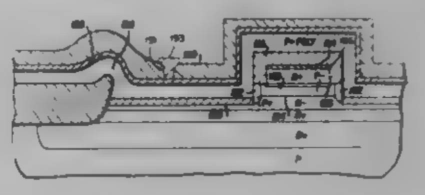
1. A method of fabricating a complementary metal-oxide-semiconductor (CMOS) integrated circuit where at least two insulated gate members are formed on a portion of a semiconductor substrate, comprising the steps of:

(a) forming a thermal oxidation insulating layer over said substrate, including over opposite sides and upper surfaces of a first and second gate members, said first gate member being formed on a first portion of said substrate and said second gate member being formed on a second portion of said substrate;
(b) forming low-temperature oxide spacer members on said opposite sides of said first and second gate members over said insulating layer;
(c) masking said second gate and said second portion of said substrate;
(d) causing first ions of a conductivity type determining impurity of a first conductivity type to impinge on the structure resulting from step (c) surrounding said first gate, wherein ion implanted regions of said first ions are formed in said substrate surrounding said first gate, said spacers and first gate member functioning as a mask and preventing said first ions from reaching said substrate, such that first ion implanted regions are formed away from said substrate underlying said spacers and first gate member;
(e) removing said spacers from about said first gate;
(f) causing second ions of a conductivity type determining impurity of said first conductivity type to impinge on the structure resulting from step (e) surrounding only said first gate member wherein said first gate member functions to mask its underlying substrate from said second ions, such that second ion implanted regions are formed immediately adjacent to substrate underlying said first gate and having lower concentration of ions than substrate disposed further from said first gate member;
(g) masking said first gate and said first portion of said substrate; and exposing said second gate and said second portion of said substrate;
(h) etching selectively said thermal oxidation insulating layer and said spacers over said second portion of said substrate, such that all spacers are removed and portions of said thermal oxidation insulating layer previously underlying said spacers are at a larger thickness than said thermal oxidation insulating layer previously not underlying said spacers about said second gate;
(i) causing third ions of a conductivity type determining impurity of a second conductivity type to impinge on the structure resulting from step (h) surrounding said second gate member, such that said substrate immediately adjacent to substrate underlying said second gate member and having lower concentration of ions than substrate disposed further from said second gate member;
(j) heating said substrate to diffuse at least a portion of said ions of first conductivity type determining impurities underneath at least a portion of said first gate member and ions of said second conductivity type determining impurities underneath at least a portion of said second gate;

whereby a CMOS integrated circuit is formed.

4,757,027
METHOD FOR FABRICATING IMPROVED OXIDE DEFINED TRANSISTORS

Madhukar B. Vora, Los Gatos, Calif., assignor to Fairchild Semiconductor Corporation, Cupertino, Calif.
Division of Ser. No. 533,797, Sep. 19, 1983, abandoned. This application Feb. 2, 1987, Ser. No. 9,773
Int. Cl.⁴ H01L *21/385*
U.S. Cl. 437—39 **16 Claims**



1. A method of making a bipolar transistor structure in an island of a first conductivity type epitaxial layer, the island being surrounded by insulating mateiral, said epitaxial layer being separated from a substrate of opposite conductivity type by a buried layer of the first conductivity type, the method comprising the steps of:

introducing a pocket of opposite conductivity type impurity into the epitaxial layer to form an intrinsic base region of the transistor structure;
depositing a first poly-silicon layer of the first conductivity type onto a defined surface area of the pocket;
depositing a first oxide layer covering exposed surfaces of the first poly-silicon layer;
etching an area of the epitaxial layer to expose a generally vertical wall of the epitaxial layer around the first oxide layer;
forming anisotropically a generally horizontal second oxide layer which leaves exposed at least a portion of the generally vertical wall;
depositing a second poly-silicon layer containing an impurity of the opposite conductivity type onto the surface of the structure, so that the second poly-silicon layer contacts the exposed portion of the generally vertical wall; and
treating the sturcture to cause at least some of the impurity in the first poly-silicon layer to enter the pocket, and to cause at least some of the impurity in the second poly-silicon layer to enter the epitaxial layer through the exposed, generally vertical wall whereby a first junction of the transistor structure is formed, an edge of said first junction terminating in the second oxide layer, and whereby a second junction of the transistor structure is formed, an edge of the second junction terminating in the first oxide layer.

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4,757,028
PROCESS FOR PREPARING A SILICON CARBIDE DEVICE

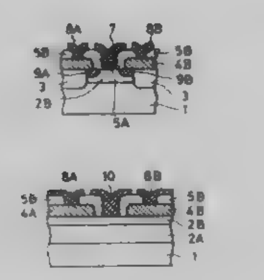
Yasushi Kondoh; Yutaka Hayashi, and Tetsuo Takahashi, all of Ibaraki, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Filed Oct. 2, 1986, Ser. No. 914,498

Claims priority, application Japan, Oct. 7, 1985, 60-222954

Int. Cl.^{4} H01L *21/441, 29/04, 29/161, 29/48*

U.S. Cl. 437—40 9 Claims



1. A process for preparing a field effect transistor of silicon carbide, comprising the steps of:

(a) depositing a first electrically conductive layer on the surface of a silicon carbide layer;

(b) partially removing said first electrically conductive layer and exposing a surface of said silicon carbide layer to obtain two spaced apart regions of said first electrically conductive layer, said two spaced apart regions of the first electrically conductive layer constituting a source and a drain electrode of a field effect transistor of silicon carbide to be prepared, the space between said source electrode and said drain electrode defining in said silicon carbide layer a channel region of said field effect transistor;

(c) forming insulating layers on surfaces of said source electrode, said drain electrode, and said exposed silicon carbide layer, wherein, owing to the differences in the formation rates of said insulating layers, said insulating layers on said exposed silicon carbide layer are thinner than those on said source and drain electrodes;

(d) depositing a second electrically conductive layer on said insulating layers; and

(e) partially removing said second electrically conductive layer in a pattern which leaves portions thereof remaining at least above said channel region to provide a gate electrode of said field effect transistor, said gate electrode being insulated from said source and said drain by said insulating layers.

4,757,029
METHOD OF MAKING VERTICAL FIELD EFFECT TRANSISTOR WITH PLURALITY OF GATE INPUT CNNECTIONS

Daniel N. Koury, Jr., Scottsdale, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed May 4, 1987, Ser. No. 45,502

Int. Cl.^{4} H01L *21/265, 21/18*

U.S. Cl. 437—90 7 Claims

1. A method for making a vertical field effect transistor (FET) which implements a logical "or" function comprising the steps of:

providing a silicon wafer;

forming a first dielectric layer on said silicon wafer;

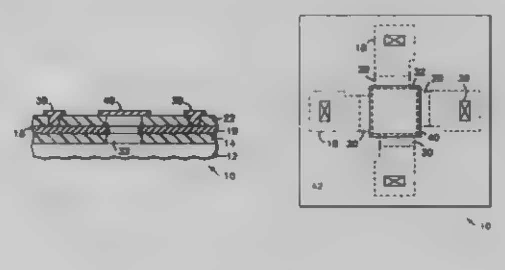
forming a polycrystalline silicon layer on said first dielectric layer;

patterning said polycrystalline silicon layer to create a plurality of input gates;

forming a second dielectric layer on said patterned polycrystalline silicon layer;

forming an opening to said silicon wafer, said opening exposing an edge of each member of said plurality of input [illegible]

forming a gate dielectric layer on each of said edges of each member of said plurality of input gates; and



growing an epitaxial island seated on said silicon wafer in said opening, said island being doped to form a field effect transistor.

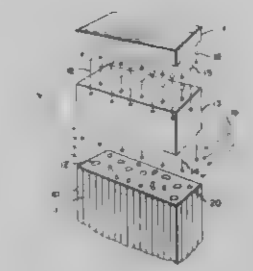
4,757,030
METHOD OF MAKING GROUP IV SINGLE CRYSTAL LAYERS ON GROUP III-V SUBSTRATES USING SOLID PHASE EPITAXIAL GROWTH

Gregory J. Galvin, Ithaca, N.Y., and Christopher J. Palmstrom, Highland Park, N.J., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Division of Ser. No. 746,899, Jun. 20, 1985, abandoned. This application Nov. 26, 1986, Ser. No. 935,111

Int. Cl.^{4} H01L *21/203, 21/365*

U.S. Cl. 437—132 8 Claims



1. A method of solid phase epitaxially growing a Ge layer on a group III–V substrate comprising the steps of:

cleaning a surface of the substrate without heating for a time sufficient to remove contaminants from the surface at a pressure low enough to delay contaminant reformation.

depositing a Ge layer on the cleaned substrate surface without heating the substrate after said cleaning within a time period before substantial contaminant reformation occurs,

implanting ions selected from the group consisting of Si^+ and As^+ into said deposited Ge layer,

thereafter annealing combined structure of the ion implanted Ge layer and the substrate by heating in an annealing furnace to allow the Ge to grow on the substrate by solid phase epitaxy.

4,757,031
METHOD FOR THE MANUFACTURE OF A PN-JUNCTION HAVING HIGH DIELECTRIC STRENGTH

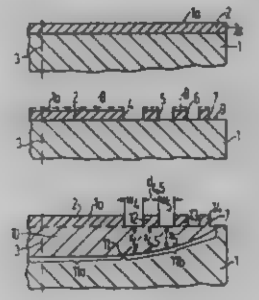
Reinhold Kuhnert, Munich, and Hans-Joachim Schulze, Anzing, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Aug. 17, 1987, Ser. No. 86,269

Claims priority, application Fed. Rep. of Germany, Sep. 30, [illegible]

Int. Cl.^{4} H01L *21/383*

U.S. Cl. 437—154 8 Claims



1. A method for the manufacture of a pn-junction having high dielectric strength which comprises:

providing a doped semiconductor body of a first conductivity type,

forming a zone of a second conductivity type in said body inwardly from a surface thereof,

forming at least one recess in said zone of second conductivity type including a marginal edge of said body, and

diffusing dopant of said second conductivity type further into said semiconductor body to form zones of varying dopant penetration depths from the center of said body to said marginal edge.

4,757,032
METHOD FOR DMOS SEMICONDUCTOR DEVICE FABRICATION

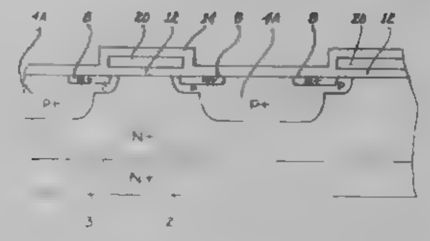
Claudio Contiero, Buccinasco, Italy, assignor to SGS Thomson Microelectronics S.p.A., Italy

Filed Sep. 6, 1985, Ser. No. 773,318

Claims priority, application Italy, Oct. 25, 1984, 23302 A/84

Int. Cl.^{4} H01L *21/225*

U.S. Cl. 437—162 4 Claims



1. A method for the fabrication of a DMOS transistor in a semiconductor substrate, said DMOS transistor comprising a body channel region, a body channel contact region, a source region, a gate insulating layer, and a gate electrode, comprising the steps of:

forming said body channel contact region in said semiconductor substrate;

forming said gate insulating layer directly over the entirety of said body channel contact region;

forming said gate electrode by patterning a layer of polycrystalline silicon deposited on said gate insulator;

forming said channel body region;

removing a portion of said gate insulating layer from said substrate including a portion of said channel body contact region;

forming a thin layer of arsenic-doped polycrystalline silicon over said substrate, said thin layer of arsenic doped polycrystalline silicon being in contact with said body channel region and said body channel contact region; and

diffusing from said thin layer of arsenic doped polycrystalline silicon to form said source region in said substrate where only said gate insulating layer masks said body contact region from said diffusing step.

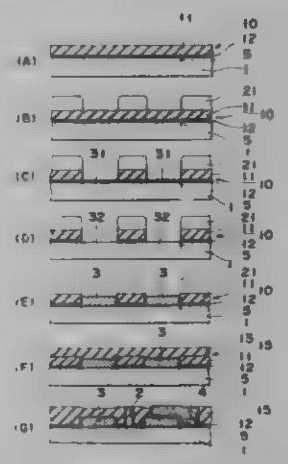
4,757,033
SEMICONDUCTOR DEVICE MANUFACTURING BY SEQUENTIAL ION AND WET ETCHINGS PRIOR TO LIFT-OFF METALLIZATION

Toshiki Ebata, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Mar. 31, 1986, Ser. No. 846,090

Int. Cl.^{4} H01L *21/441*

U.S. Cl. 437—228 5 Claims



1. A method of manufacturing a semiconductor device, comprising the steps of:

forming a two-layer insulating film on a surface of a substrate made of compound semiconductor;

said two-layer insulating film being constituted by a first insulating layer and a second insulating layer such that said first and second insulating layers are, respectively, disposed on said surface of said substrate and said first insulating layer and have different chemical properties so that the ion etching speed of said first layer is less than the ion etching speed of said second layer;

said first and second insulating layers being, respectively, made of first and second insulating materials;

forming a predetermined photoresist pattern on said second insulating layer;

performing reactive ion etching of said second insulating layer through utilization of said photoresist pattern as a mask for the reactive etching, said first layer substantially blocking said substrate from ion bombardment and subsequently, performing wet etching of said first insulating layer through utilization of said photoresist pattern and said second insulating layer as a mask for the wet etching so as to form on said two-layer insulating film an opening identical, in contour, to said photoresist pattern;

depositing in said opening metal for forming both an electrode and a first level interconnection; and

lifting off said metal so that an electrode and a first level interconnection are formed.

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4,757,034

LIGHTLY TINTED GLASSES OF VARIABLE TRANSMISSION

Michel Prassas, Avon, France, assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 30, 1987, Ser. No. 31,267

Claims priority, application France, Jul. 11, 1986, 86 10165

Int. Cl.⁴ C03C *4/06, 3/11*

U.S. Cl. 501—13 **4 Claims**

1. A lightly tinted, variable transmission glass having a base composition consisting essentially, reported in terms of weight percent on the oxide basis, of

SiO_2	[illegible]	MgO	0–3.5
B_2O_3	[illegible]	CaO	0–6
Al_2O_3	4–11	SrO	[illegible]
ZrO_2	2–6	BaO	[illegible]
Li_2O	1.5–5	P_2O_5	0–5
Na_2O	[illegible]	TiO_2	0–3
K_2O	2.5–9		

and also containing small amounts of the photochromic elements Ag, Cl, Br, and CuO, characterized in that

(A) the said photochromic elements are present in the following proportions, reported in terms of weight percent as analyzed in the glass

Ag	[illegible]	Br	0.08–0.18
Cl	0.06–0.26	CuO	[illegible]

with the conditions that

(i) when the amount of Ag is greater or equal to 0.12%, the ratio Br:(Cl+Br) should be greater or equal to 0.25 and

(ii) when the amount of Ag is less than 0.12% the ratio Br:(Cl+Br) should be greater or equal to 0.30; and

(B) the glass, when it is in the form of a lens of 2 mm thickness, exhibits the following optical properties:

(a) a luminous transmission in the clear state (T_o) greater than about 86%;

(b) a luminous transmission in the darkened state after 15 minutes' exposure to actinic radiation (T_{D15}) over the full extent of temperatures of 0°–25° C. between about [illegible];

(c) a fading rate at ambient temperature (20°–25° C.) such that, after five minutes' withdrawal from actinic radiation, the glass exhibits a luminous transmission (T_{F5}) of at least 78%;

(d) a difference of luminous transmission in the darkened state over the temperature interval of 0°–25° C. of less than five points of transmission percentage; and

(e) a difference of luminous transmission in the darkened state over the temperature interval of 25°–40° C. of less than six points of transmission percentage.

4,757,035

CERAMIC MATERIALS WITH INCREASED CRYSTALLINITY FROM SILAZANE POLYMERS

Ronald H. Baney, Midland, and Duane R. Bujalski, Monitor Township, Bay County, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 652,939, Sep. 21, 1984, abandoned. This application May 23, 1986, Ser. No. [illegible]

Int. Cl.⁴ C04B [illegible]

U.S. Cl. 501—[illegible] **27 Claims**

1. A method of preparing a ceramic material with increased crystallinity, said method comprising heating a modified R_3SiNH-containing silazane polymer in an inert atmosphere or in a vacuum to a temperature of at least 750° C. until said modified R_3SiNH- containing silazane polymer is converted to a ceramic material with increased crystallinity relative to a non-modified R_3SiNH-containing silazane polymer heated under the same conditions, wherein said modified R_3SiNH-contianing silazane polymer is prepared by mixing the non-modified R_3SiNH-containing silazane polymer with an effective, crystallinity increasing, amount of an inorganic compound selected form the group consisting of iron III oxide, iron III octoate, iron II acetylacetonate, iron III chloride, cobalt II octoate, copper II octoate, nickel II octoate and noncarbonyl-[illegible].

4,757,036

MICROCRYSTALLINE TRANSITION METAL OXIDE SPINEL ARTICLES

David R. Kaar; Harold G. Sowman, both of St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 809,066, Dec. 13, 1985, abandoned. This application Sep. 14, 1987, Ser. No. 97,369

Int. Cl.⁴ C04B *35/44;* C03C *10/02;* B01J *13/00*

U.S. Cl. 501—95 **17 Claims**

1. A ceramic fiber consisting essentially of at least one magnetically-unaligned, microcrystalline, transition metal oxide spinel phase, said fiber being homogeneous and non-porous and having a surfce area of less than 1 m²/g.

13. A process for making a refractory spinel shaped article comprising the steps:

a. providing an aqueous mixture containing soluble inorganic and transition metal salts, oxides, sols, dispersible colloids, or mixtures thereof,

b. concentrating said mixture to a viscous concentrate,

c. shaping the resulting viscous concentrate into a desired formed article,

d. dehydratively gelling the formed article to provide a green non-refractory shaped article, and

e. heating and firing the green shaped article in a temperature range of 820° to 1000° C. to provide said refractory spinel article;

said refractory shaped article being a ceramic bead, bubble, flake, microsphere, film, granule, or continuous fiber consisting essentially of at least one microcrystalline transition metal oxide spinel phase, and said article being homogenous and non-porous.

4,757,037

NEODYMIUM TITANATE AND BARIUM NEODYMIUM TITANATE, PROCESSES FOR THEIR PREPARATION, AND THEIR APPLICATIONS IN CERAMIC COMPOSITIONS

Jean-Francois Colombet, Rueil-Malmaison, and Claude Magnier, Paris, both of France, assignors to Rhone-Poulenc Specialities Chimiques, Courbevoie, France

Filed Mar. 3, 1986, Ser. No. 835,213

Claims priority, application France, Mar. 1, 1985, 85 03024

Int. Cl.⁴ C01G *23/00;* C01F *17/00;* C04B *35/46*

U.S. Cl. 501—134 **13 Claims**

1. A process for the preparation of a fine powder of neodymium titanate or of barium neodymium titanate, comprising the steps of:

forming a suspension containing particles by mixing a sol of titania having a pH of from about 0.8 to 2.5 and containing elementary crystallites of TiO_2 having dimensions of from about 10 to 100 Å in diameter, which crystallites are agglomerated into submicron aggregates of TiO_2 having dimensions of from about 200 to 1,000 Å in diameter with a solution of neodymium nitrate or a solution of barium and neodymium nitrates;

drying said suspension to obtain a dried product; and

calcining the dried product at a temperature of from about 800° to 1,300° C. for a time sufficient to obtain said powder.

4,757,038

REGENERATION OF IRON-ANTIMONY METALLIC OXIDE CATALYSTS

Yutaka Sasaki; Yutaka Kiyomiya; Toshio Nakamura; Yoshimi Nakamura, and Masanori Yamaguchi, all of Kanagawa, Japan, assignors to Nitto Chemical Industry Co., Ltd.

Continuation of Ser. No. [illegible], Jun. 14, 1985, abandoned, which is a continuation of Ser. No. [illegible], Oct. 26, 1983, abandoned. This application May 15, 1987, Ser. No. 52,226

Claims priority, application Japan, Oct. 26, 1982, 57-186746

Int. Cl.⁴ B01J *23/94, 23/92;* C07C *121/32, 121/14*

U.S. Cl. 502—20 **13 Claims**

1. A process for regenerating an iron-antimony metallic oxide catalyst which has become deactivated by being used for ammoxidation of organic compounds to the corresponding nitriles in fluidized bed reactors, said process comprising the steps of:

providing a first iron-antimony metallic oxide catalyst containing as essential components (I) Fe, (II) Sb, (III) at least one element selected from the group consisting of V, Mo and W, and (IV) Te, which is deactivated, wherein said first catalyst prior to deactivation has the empirical formula:

$$Fe_{10}Sb_aMe_bTe_cQ_dO_e(SiO_2)_f$$

wherein

Me is at least one element selected from the group consisting of V, Mo and W;

Q is at least one element selected from the group consisting of Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, Ba, Y, La, Ce, Th, U, Ti, Zr, Hf, Nb, Ta, Cr, Mn, Re, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Zn, Cd, B, Al, Ga, In, Tl, Ge, Sn, Pb, P, As, Bi, S and Se;

a is 2 to 100,

b is 0.01 to 20,

c is 0.05 to 10,

d is 0 to 20,

e is the number of oxygen atoms corresponding to the oxides formed by the above components, and

f is 0 to 200;

providing a second iron-antimony metallic oxide catalyst containing as essential components (I) Fe, (II) Sb, (III) at least one element selected from the group consisting of V, Mo and W, and (IV) Te, wherein said second catalyst prior to enrichment has the empirical formula;

$$Fe_{10}Sb_aMe_bTe_cQ_dO_e(SiO_2)_f$$

where

Me is at least one element selected from the group consisting of V, Mo and W;

Q is at least one element selected from the group consisting of Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, Ba, Y, La, Ce, Th, U, Ti, Zr, Hf, Nb, Ta, Cr, Mn, Re, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Zn, Cd, B, Al, Ga, In, Tl, Ge, Sn, Pb, P, As, Bi, S and Se;

a is 2 to 100,

b is 0.01 to 20,

c is 0.05 to 20,

d is 0 to 20,

e is the number of oxygen atoms corresponding to the oxides formed by the above components, and

f is 0 to 200;

supporting a molybdenum compound which is volatile or capable of forming a volatile component under reaction conditions on said second catalyst by impregnating said second catalyst with said molybdenum compound thereby forming a molybdenum-enriched catalyst, wherein the molybdenum compound that is supported on the molybdenum-enriched catalyst is at least one member selected from the group consisting of molybdenum dioxide, molybdenum trioxide, molybdic acid, ammonium molybdate, ammonium paramolybdate, molybdates, phosphomolybdic acid, ammonium phosphomolybdate, phosphomolybdates, heteropoly acids of molybdenum and salts thereof, molybdenum dichloride, molybdenum trichloride and said molybdenum compound does not contain tellurium; and

performing the ammoxidation of at least one organic compound in a fluidized bed reactor in the presence of a mixture of said first catalyst and said molybdenum-enriched catalyst, wherein the second iron-antimony metallic oxide catalyst is added to increase the apparent content of molybdenum in the total catalyst inthe fluidized bed reactor by 0.01 to 2 wt %.

4,757,039

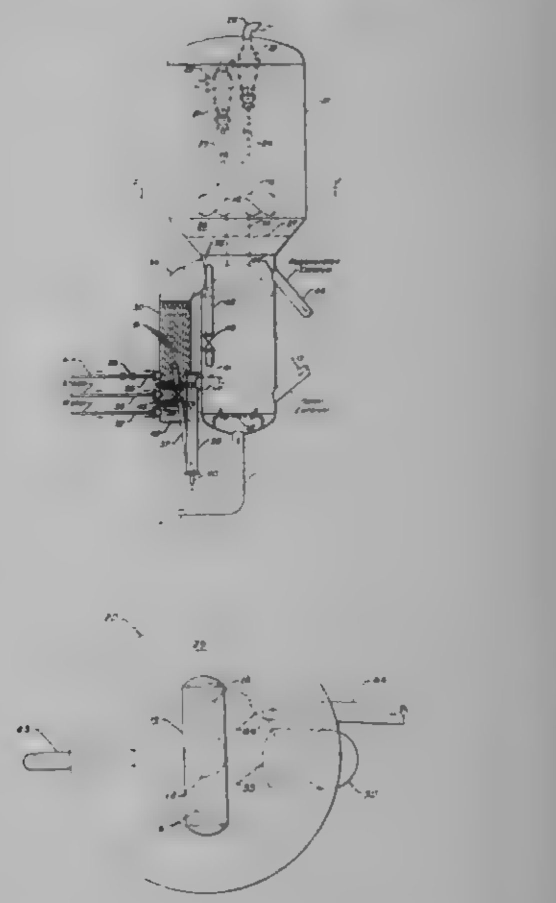
DUAL FUNCTION HEAT WITHDRAWAL IN A FLUIDIZED CATALYTIC CRACKING-REGENERATION PROCESS

David A. Lomas, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Feb. 24, 1987, Ser. No. 18,265

Int. Cl.⁴ B01J *38/30, 38/32;* C10G *11/18*

U.S. Cl. 502—41 **6 Claims**



1. A method of cooling fluidized cracking catalyst in a catalyst regeneration zone for use in a catalytic cracking reaction zone that allows cooling of the catalyst for the reaction zone with and without overall cooling of the catalyst throughout the regeneration zone, said process comprising:

(a) introducing oxygen containing regeneration gas and coke contaminated fluidized catalyst into a lower locus of a combustion zone maintained at a temperature sufficient for coke oxidation and therein oxidizing coke to produce hot regenerated catalyst and hot flue gas;

(b) transporting said hot flue gas and said hot regenerated catalyst from an upper locus of said combustion zone into

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a regenerated catalyst disengaging zone, wherein said hot regenerated catalyst is separated from said flue gas;
(c) withdrawing regenerated catalyst from a withdrawal point at a lower locus of said disengaging zone and transporting said regenerated catalyst to said fluidized catalytic cracking reaction zone;
(d) circulating catalyst from said disengaging zone into a cooling zone having an inlet located in a 120° sector of a horizontal plane passing through said inlet and withdrawal point, said sector being taken about the centerline of said disengaging zone and containing said inlet and said withdrawal point;
(e) removing heat from said catalyst in said cooling zone by indirect heat exchange with a cooling fluid enclosed in a heat exchange means inserted into said cooling zone to produce relatively cool regenerated catalyst;
(f) passing a fluidizing gas upwardly through said cooling zone in sufficient quantity to maintain a dense fluidized bed in said zone;
(g) operating said cooling zone for a limited time without downward flow through the cooling zone, to directly exchange catalyst in said cooler with catalyst in said disengaging zone through the inlet of said cooling zone and withdraw relatively cool catalyst from said withdrawal point without directly effecting substantial catalyst cooling throughout said regeneration zone; and
(h) withdrawing cooled catalyst from a lower locus of said cooling zone and transporting said cooled catalyst into said combustion zone to directly effect catalyst cooling throughout said regeneration zone.

4,757,040
CLASS OF PILLARED INTERLAYERED CLAY MOLECULAR SIEVE PRODUCTS WITH REGULARLY INTERSTRATIFIED MINERAL STRUCTURE

Jingle Guan; Enze Min, and Zhiqing Yu, all of Beijing, China, assignors to Research Institute of Petroleum Processing Sinopec, Beijing, China

Filed Mar. 18, 1986, Ser. No. 840,680

Claims priority, application China, Apr. 1, 1985, 85100216

Int. Cl.⁴ B01J *21/16, 20/12*

U.S. Cl. 502—63 **18 Claims**

1. A class of pillared interlayered clay molecular sieves consisting of the unit layers which is actually the non-swelling component in the regularly interstratified mineral clays and the pillars made of inorganic oxides inserted into the interlayers of the swelling component in said regularly interstratified mineral clay.

2. The molecular sieves of claim 1 wherein said regularly interstratified mineral clay are selected from the naturally occurring or chemically synthesized group consisting of mica-smectite, illite-smectite, glauconite-smectite, chlorite-smectite, mica-vermiculite, kaolinite-smectite and mixtrures thereof.

3. The molecular sieves of claim 1 wherein said regularly interstratified mineral clay are naturally occurring or synthetic' rectorite or mixtures thereof.

5. The molecular sieves of claim 3 wherein said inorganic oxides inserted into the interlayers of the swelling component in the regularly interstratified mineral clay are selected from the group consisting of alumina, zirconia and mixtures thereof.

4,757,041
CATALYSTS FOR CRACKING AND DEWAXING HYDROCARBON OILS

Stephen M. Oleck, Moorestown, and Robert C. Wilson, Jr, Woodbury, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 877,707, Jun. 20, 1986, abandoned, which is a continuation of Ser. No. 745,829, Jun. 18, 1985, abandoned, which is a continuation of Ser. No. 541,764, Oct. 13, 1983, abandoned. This application Dec. 16, 1986, Ser. No. [illegible]

Int. Cl.⁴ B01J *29/10, 29/16*

U.S. Cl. 502—65 **19 Claims**

1. A catalyst composition for hydrodewaxing and hydrocracking a hydrocarbon fraction, said catalyst composition comprising a mixture of one or more zeolites selected from the groups consisting of zeolite X and Y, the acid form of zeolite Y, and other natural or synthetic faujasites, a hydrogenation metal, and zeolite beta.

5. The catalyst composition of claim 1 wherein said hydrogenation metal is one or more metals selected from the group consisting of Groups VIA and VIIIA.

10. The catalyst composition of claim 1 wherein one of said zeolites is a rare earth-exchanged zeolite X.

16. The composition of claim 1 further comprising a porous matrix material.

4,757,042
OLEFIN OLIGOMERIZATION CATALYST

Richard S. Threlkel, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 896,897, Aug. 15, 1986, Pat. No. 4,677,241. This application May 1, 1987, Ser. No. 45,027

Int. Cl.⁴ C08F *4/60;* **B01J** *31/14*

U.S. Cl. 502—112 **10 Claims**

1. A catalyst composition comprising (1) a transition metal complex selected from complexes of nickel and palladium with a fluoro-organic thiol or sulfide ligand, having a single sulfur atom in a ligating position and wherein the carbon atom adjacent the carbon atom to which the sulfur atom is attached has at least one fluoro substituent and with the proviso that said fluoroorganic thiol or sulfide does not contain any other ligating group or atom in a ligating position which will displace fluoro as a ligand, and (2) an organometallic-reducing agent selected from the group of borohydride and organoaluminum halides and alkoxides having the formula $R^* AlX_n$ wherein R^* is alkyl, aryl or arylalkyl; X is fluoride, chloride, bromide, iodide or alkoxide and m is 1 or 2 and n is 3—m.

4,757,043
PROCESS FOR PREPARING VAPOR PHASE NITRATION CATALYSTS

Ignatius Schumacher, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 14, 1984, Ser. No. 671,358

Int. Cl.⁴ B01J *27/24, 27/02, 23/00*

U.S. Cl. 502—200 **12 Claims**

1. A process for preparing a nitration promoting catalyst which comprises contacting under substantially anhydrous conditions a composition consisting essentially of a Group 4b-Group 3b mixed oxide represented by the empirical formula:

$$(M^1_aM^2_bO_c)_x(NO_2)_y$$

wherein M^1 is at least one element selected from Group 4b of the Periodic Table of the Elements, M^2 is at least one element selected from Group 3b of the Periodic Table of the Elements, a is 1, b is 0 to 20, c is a number taken to satisfy the average valences of M^1 and M^2 in the oxidation states in which they exist in the composition, x is 1, and is 0 to c, with a catalytically effective amount of sulfur trioxide.

4,757,044
LANTHANIDE METAL SALTS OF HETEROPOLYANIONS AS CATALYSTS FOR ALCOHOL CONVERSION

Arthur J. Cooper, Garfield Heights; Frederick A. Pesa, Aurora, and Janie K. Currie, Russell, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Apr. 17, 1985, Ser. No. 724,236

Int. Cl.⁴ C08K *3/22*

U.S. Cl. 502—204 4 Claims

1. A heteropolyacid salt catalyst having the formula

$$[M]^{m+}[X^{p-}Y_aZ_{12-a}O_{40}]^{-(8-p)}$$

BEST COPY AVAILABLE

wherein

M is at least one element selected from the actinides,
X is selected from P, Si, As, Ti, Zr, B, Co, Cu or Sn;
Y and Z are independently selected from W, Mo or V;
p=the valence of X;
$m=8-p$; and
$O<a\leqq 12$.

4,757,045
CATALYSTS WITH SUPPORT COATINGS HAVING INCREASED MACROPOROSITY AND METHOD FOR PRODUCING THE CATALYSTS

Marvin E. Turner, Huntsville, Ala.; Joseph C. Dettling, Howell, and Kenneth I. Jagel, Jr., Stanton, both of N.J., assignors to Engelhard Corporation, Menlo Park, N.J.

Continuation-in-part of Ser. No. 466,183, Feb. 14, 1983, abandoned. This application Jan. 10, 1984, Ser. No. 569,645

Int. Cl.⁴ B01J *21/04, 21/06, 23/40, 23/58*

U.S. Cl. 502—252 **20 Claims**

1. In a catalytic composition comprising (a) a carrier, (b) a refractory metal oxide support coating on the carrier and (c) a catalytic platinum group metal dispersed on the support coating, the improvement comprising that the support coating is provided by a mixture of a major portion of a first refractory metal oxide, and a minor portion of a second refractory metal oxide, the first metal oxide having a surface area greater than about 25 square meters per gram, an accessible pore volume of greater than about 0.03 cubic centimeters per gram, and a pore size range such that at least about 95% of its pore volume is provided by pores having a diameter of less than about 2000 Angstroms, and the second metal oxide having an accessible pore volume of greater than about 0.03 cubic centimeters per gram, a surface area of less than about 25 square meters per gram, and a pore size range such that at least about 35% of its pore volume is provided by pores having a diameter of at least about 2000 Angstroms when the second metal oxide particles being measured for pore size are at least 44 microns in diameter, wherein essentially all of the catalytic platinum group metal is dispersed on the first refractory metal oxide.

4,757,046
MEROCYANINE DYE-DONOR ELEMENT USED IN THERMAL DYE TRANSFER

Gary W. Byers, and Derek Chapman, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 915,441, Oct. 6, 1986, abandoned. This application Jun. 8, 1987, Ser. No. 59,442

Int. Cl.⁴ B41M *5/035, 5/26*

U.S. Cl. 503—227 **20 Claims**

10. In a process of forming a dye transfer image comprising imagewise-heating a substantially nonphotobleachable dye-donor element comprising a support having thereon a dye layer comprising a dye dispersed in a polymeric binder and transferring a dye image to a dye-receiving element to form said dye transfer image, the improvement wherein said dye comprises a merocyanine dye which is capable of transfer by diffusion to a dye-receiving element upon the application of heat and is incapable of substantial photolysis, said merocyanine dye being substituted or unsubstituted on the bridging methine carbon atoms.

4,757,047
SUBLIMATION-TYPE THERMAL TRANSFER IMAGE RECEIVING PAPER

Takao Kosaka, Himeji, Japan, assignor to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Aug. 11, 1986, Ser. No. 895,431

Claims priority, application Japan, Aug. 12, 1985, 60-178363

Int. Cl.⁴ B41M *5/035, 5/26*

U.S. Cl. 503;227 **5 Claims**

1. A sublimation type thermal transfer recording system comprising:

an image receiving paper; and
a coloring material sheet having a layer of heat-sublimable coloring materials, said image receiving layer being provided on a support containing a saturated polyester and one or more higher fatty acid amides.

4,757,048
SYNTHETIC ANALOGS OF ATRIAL NATRIURETIC PEPTIDES

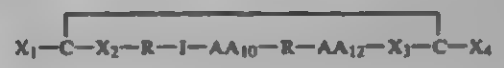
John A. Lewicki, Sunnyvale; Robert M. Scarborough, Jr., Hayward, and Lorin K. Johnson, Pleasanton, all of Calif., assignors to Biotechnology Research Associates J.V., Mountain View, Calif.

Continuation-in-part of Ser. No. 795,220, Nov. 5, 1985, abandoned. This application May 28, 1986, Ser. No. [illegible]

Int. Cl.⁴ A61K *37/02;* **C07K** *7/06, 7/08, 7/10*

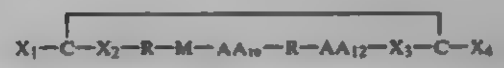
U.S. Cl. 514—11 **9 Claims**

1. A cyclic peptide useful as a natriuretic, diuretic, and/or vasodilator in mammals, of the formula:



$$X_1-C-X_2-R-I-AA_{10}-R-AA_{12}-X_3-C-X_4$$

or



$$X_1-C-X_2-R-M-AA_{10}-R-AA_{12}-X_3-C-X_4$$

wherein the indicated bridge is a disulfide bridge between the two cysteine residues to which it is attached, and wherein

AA_{10} is D or E,
AA_{12} is I or V,
X_1 is H, acetyl, or a peptide including the N-terminal acetylated forms thereof of 1–6 amino acids selected from the group consisting of S, L, R, and Y;
X_2 is a covalent bond or a peptide of 1–3 amino acids, wherein said amino acids are selected from the group consisting of F, G, A, S, and Aib;
X_3 is a covalent bond or is a peptide of 1–7 amino acid residues wherein said residues are selected from the group consisting of A, Q, S, G, L and Aib;
wherein X_4 is OH, NH_2, or a peptide including the C-terminal amide derivatives thereof, of 1–5 amino acid residues wherein said amino acid residues are selected from the group consisting of N, S, F, R, and Y;
wherein one of the amino acid residues may optionally be in the D form;
with the proviso that when X_2 is a tripeptide, X_3 is not a heptapeptide, and when X is F—G, X_3 cannot be G—A—Q—S—G—L—G.

4,757,049
PROCESS FOR USING ENDOGENOUS ENKEPHALINS AND ENDORPHINS TO STIMULATE THE IMMUNE SYSTEM OF PATIENTS WITH AIDS

Nicholas P. Plotnikoff, Tulsa, Okla., assignor to TNI Pharmaceuticals, Inc., Tulsa, Okla.

Continuation of Ser. No. 698,035, Feb. 4, 1985, abandoned, which is a continuation-in-part of Ser. No. 597,378, Apr. 6, 1984, abandoned, which is a continuation-in-part of Ser. No. 308,287, Oct. 5, 1981, abandoned. This application Oct. 20, 1986, Ser. No. [illegible]

Int. Cl.⁴ A61K *37/02*

U.S. Cl. 514—17 **4 Claims**

1. A process for the therapeutic treatment of AIDS comprising the step of administering an effective dosage of methionine-enkephalin.

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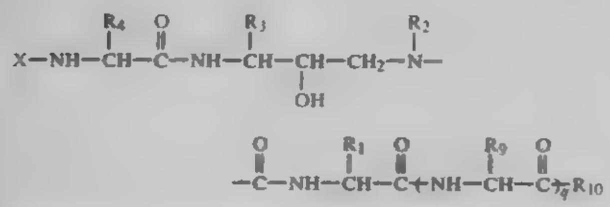
4,757,050
UREIDO RENIN INHIBITORS

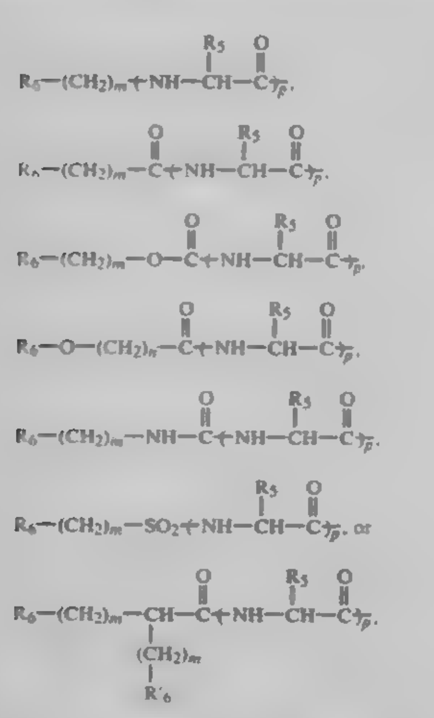
Seetha I. Natarajan, Neshanic Station; Denis E. Ryono, Princeton, and Edward W. Petrillo, Jr., Pennington, all of N.J., assignors to E. R. Squibb Sons, Inc., Princeton, N.J.
Continuation of Ser. No. 923,780, Oct. 27, 1986, abandoned, which is a continuation-in-part of Ser. No. 812,561, Dec. 23, 1985, abandoned. This application Aug. 28, 1987, Ser. No. 93,080
Int. Cl.⁴ A61K *37/02;* C07K *7/02, 5/08, 5/10, 7/06*
U.S. Cl. 514—18 **20 Claims**

1. A compound of the formula



$$X-NH-\overset{R_4}{CH}-\overset{O}{\overset{\|}{C}}-NH-\overset{R_3}{CH}-\underset{OH}{CH}-CH_2-\overset{R_2}{N}-\overset{O}{\overset{\|}{C}}-NH-\overset{R_1}{CH}-\overset{O}{\overset{\|}{C}}\left(NH-\overset{R_9}{CH}-\overset{O}{\overset{\|}{C}}\right)_{q}R_{10}$$

including a pharmaceutically acceptable salt thereof wherein.



$$R_6-(CH_2)_m\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p},$$

$$R_6-(CH_2)_m-\overset{O}{\overset{\|}{C}}\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p},$$

$$R_6-(CH_2)_m-O-\overset{O}{\overset{\|}{C}}\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p},$$

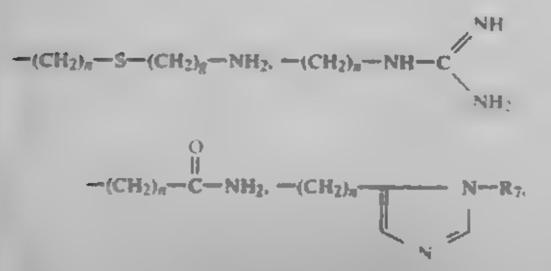
$$R_6-O-(CH_2)_n-\overset{O}{\overset{\|}{C}}\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p},$$

$$R_6-(CH_2)_m-NH-\overset{O}{\overset{\|}{C}}\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p},$$

$$R_6-(CH_2)_m-SO_2\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p}, \text{ or}$$

$$R_6-(CH_2)_m-\underset{\underset{R'_6}{(CH_2)_{m'}}}{CH}-\overset{O}{\overset{\|}{C}}\left(NH-\overset{R_5}{CH}-\overset{O}{\overset{\|}{C}}\right)_{p},$$

R_1, R_3, R_4, R_5, and R_9 are independently selected from the group consisting of hydrogen, lower alkyl, halo substituted lower alkyl, —$(CH_2)_n$-aryl, —$(CH_2)_n$-heterocyclo, —$(CH_2)_n$—OH, —$(CH_2)_n$—NH_2, —$(CH_2)_n$—SH, —$(CH_2)_n$—S-lower alkyl, —$(CH_2)_n$—O-lower alkyl, —$(CH_2)_n$—O—$(CH_2)_g$—OH, —$(CH_2)_n$—O—$(CH_2)_g$—NH_2, —$(CH_2)_n$—S—$(CH_2)_g$—OH,



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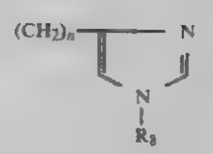
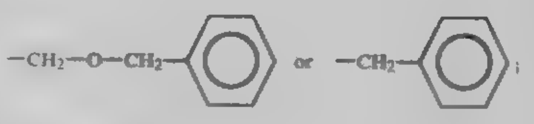
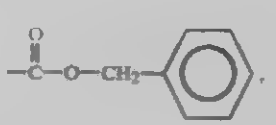
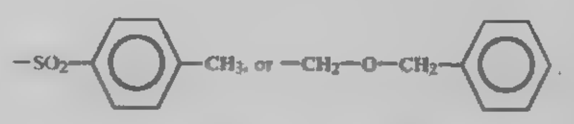


R_2 is hydrogen, lower alkyl, —$(CH_2)_m$-aryl, —$(CH_2)_m$-cycloalkyl, or —$(CH_2)_n$-heterocyclo;
R_6 and R'_6 are independently selected from the group consisting of lower alkyl, cycloalkyl, aryl and heterocyclo;
p is zero or one;
m and m' are independently selected from the group consisting of zero and an integer from 1 to 5;
n is an integer from 1 to 5;
g is an integer from 2 to 5;
R_7 is



R_8 is 2,4-dinitrophenyl,



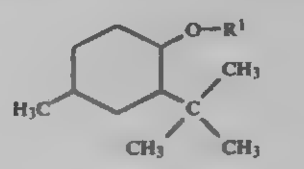


q is zero or one;
R_{10} is hydroxy, —O-lower alkyl, —O—$(CH_2)_m$-cycloalkyl, —O—$(CH_2)_m$-aryl, —O—$(CH_2)_n$-heterocyclo, —NH_2, or —O-salt forming ion;
the term lower alkyl refers to straight or branched chain radicals having up to seven carbon atoms;
the term cycloalkyl refers to saturated rings of 4 to 7 carbon atoms;
the term halo refers to Cl, Br, and F;
the term halo substituted lower alkyl refers to such lower alkyl groups in which one or more hydrogens have been replaced by chloro, bromo or fluoro groups;
the term aryl refers to phenyl, 1-naphthyl, 2-naphthyl, mono substituted phenyl, 1-naphthyl, or 2-naphthyl wherein said substituent is lower alkyl of 1 to 4 carbons, lower alkylthio of 1 to 4 carbons, lower alkoxy of 1 to 4 carbons, halogen, hydroxy, amino, —NH-alkyl wherein alkyl is of 1 to 4 carbons, or —N(alkyl)$_2$ wherein alkyl is of 1 to 4 carbons, di or tri substituted phenyl, 1-naphthyl or 2-naphthyl wherein said substituents are methyl, methoxy, methylthio, halogen or hydroxy; and
the term heterocyclo refers to fully saturated or unsaturated rings of 5 or 6 atoms containing one or two O or S atoms and/or one to four N atoms provided that the total number of hetero atoms in the ring is 4 or less and bicyclic rings wherein the five or six membered ring containing O, S and N atoms as defined above is fused to a benzene ring.

4,757,051
2-TERT-BUTYL-4-METHYLCYCLOHEXANOL DERIVATIVES, THEIR PREPARATION AND THEIR USE AS SCENTS

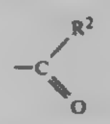
Walter Gramlich, Edingen-Neckarhausen, Fed. Rep. of Germany; Werner Hoffmann, New York, N.Y., and Ludwig Schuster, Limburgerhof, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany
Filed Aug. 11, 1987, Ser. No. 84,163
Int. Cl.⁴ A61K *7/46*
U.S. Cl. 512—23 **6 Claims**

1. A 2-tert-butyl-4-methylcyclohexanol derivative of the formula I



(I)

where R^1 is alkyl of 1 to 3 carbon atoms or an acyl group



where R^2 is alkyl of 1 to 5 carbon atoms.

4,757,052
METHOD OF PRESERVING BLOOD

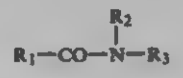
Angel K. Markov, 353 Northside Cir., Jackson, Miss. 39206
Continuation of Ser. No. 414,551, Sep. 3, 1982, Pat. No. 4,546,095, which is a continuation of Ser. No. 170,614, Jul. 21, 1980, abandoned. This application Oct. 4, 1985, Ser. No. 784,381
Int. Cl.⁴ A61K *31/66, 31/70;* C12P *19/24*
U.S. Cl. 514—23 **5 Claims**

1. A method of preserving stored blood using fructose-1,6-diphosphate, wherein 25 mg–50 mg of fructose-1,6-diphosphate are mixed with 10 ml of blood.

4,757,053
PYRIDINECARBOXAMIDE OR TRIMETHOXYBENZAMIDE COMPOUNDS DERIVED FROM NITROGENOUS LIPIDS, PHARMACEUTICAL COMPOSITIONS CONTAINING SAME WHICH POSSESS ANTI-CONVALSIVE AND ANTI-EPILEPTIC PROPERTIES

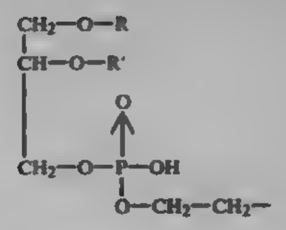
Francesco della Valle, Padova, and Aurelio Romeo, Rome, both of Italy, assignors to Fidia, S.p.A., Abano Terme, Italy
Continuation of Ser. No. 404,706, Aug. 3, 1982, abandoned. This application Dec. 11, 1985, Ser. No. 807,841
Claims priority, application Italy, Aug. 3, 1981, 49031 A/81
Int. Cl.⁴ C07F *9/58;* C07H *7/04, 7/06;* A61K *31/685*
U.S. Cl. 514—42 **13 Claims**

1. An organic amide compound of the formula:



$$R_1-CO-\overset{R_2}{N}-R_3$$

wherein R_1—CO is an acyl residue of a pyridine carboxylic acid selected from the group consisting of picolinic acid, nicotinic acid and isonicotinic acid or trimethoxybenzoic acid, R_2 is a hydrogen atom and R_3 is a residue of a phospholipid having the chemical structure:



wherein R and R' each represent a hydrogen atom or an acyl residue of a member selected from the group consisting of stearic, palmitic, oleic, linolenic, linoleic and arachidonic acid, or a pharmaceutically acceptable salt thereof.

12. A pharmaceutical composition useful for treating disorders of the central ad peripheral nervous systems comprising an effective amount of an organic amide compound according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11, or a pharmaceutically acceptable salt thereof, in combination with a pharmaceutically acceptable carrier or diluent.

4,757,054
PHARMACEUTICAL COMPOSITION CONTAINING PARA-AMINO-BENZOIC ACID-N-D-XYLOSIDE AS AN ACTIVE INGREDIENT

Chikao Yoshikumi, Kunitachi; Yoshio Ohmura, Funabashi; Fumio Hirose, Tokyo; Masanori Ikuzawa, Tachikawa; Kenichi Matsunaga, Tokyo; Takayoshi Fujii, Tokyo; Minoru Ohara, Tokyo, and Takao Ando, Kodaira, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Nihonbashi, Japan
Continuation of Ser. No. 714,837, Mar. 22, 1985, which is a continuation-in-part of Ser. No. 294,286, Aug. 19, 1981, abandoned, which is a division of Ser. No. 102,224, Dec. 10, 1979, Pat. No. 4,315,921, which is a continuation-in-part of Ser. No. 039,282, May 15, 1979, abandoned. This application Jan. 7, 1987, Ser. No. 4,308
Claims priority, application Japan, May 26, 1978, 53-63146; Dec. 29, 1978, 53-161385; Dec. 29, 1978, 53-161386
Int. Cl.⁴ A61K *31/70;* C08H *17/00*
U.S. Cl. 514—42 **4 Claims**

1. A method of inhibiting the growth of tumor cells in a patient suffering therefrom which comprises administering to said patient an effective tumor growth inhibiting amount of p-aminobenzoic acid N-D-xyloside or a pharmaceutically acceptable salt thereof.

4,757,055
METHOD FOR SELECTIVELY CONTROLLING UNWANTED EXPRESSION OR FUNCTION OF FOREIGN NUCLEIC ACIDS IN ANIMAL OR MAMMALIAN CELLS

Paul S. Miller, Baltimore, and Paul O. P. Ts'O, Lutherville, both of Md., assignors to The Johns Hopkins University, Baltimore, Md.
Continuation-in-part of Ser. No. 363,230, Mar. 29, 1982, Pat. No. 4,511,713, which is a continuation-in-part of Ser. No. 206,297, Nov. 12, 1980, Pat. No. 4,469,863. This application Apr. 27, 1984, Ser. No. 604,919
Int. Cl.⁴ A61K *31/70, 31/665*
U.S. Cl. 514—44 **4 Claims**

1. A method for inhibiting the Herpes simplex virus (type 1 and type 2) in a host in need of such treatment which comprises binding the said virus in said host with an effective amount of a nonionic oligonucleoside alkyl or arylphosphonate which is complementary to the base sequence of said virus.

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4,757,056

METHOD FOR TUMOR REGRESSION IN RATS, MICE AND HAMSTERS USING HEXURONYL HEXOSAMINOGLYCAN-CONTAINING COMPOSITIONS

Cornelius L. Van Gorp, Lebanon, and Thomas M. Wolf, West Chester, both of Ohio, assignors to Hepar Industries, Inc., Franklin, Ohio

Continuation-in-part of Ser. No. 586,047, Mar. 5, 1984, abandoned. This application Apr. 26, 1985, Ser. No. 727,565

Int. Cl.⁴ A61K *31/715, 31/725, 31/56*

U.S. Cl. 514—54 **4 Claims**

1. A method of causing regression of established malignant tumors in a rat, mouse or hamster, comprising administering to said rat, mouse or hamster an antineoplastic, tumor-regressing amount of hexuronyl hexosaminoglycan sulfate having an average molecular weight not less than 25,000 Daltons together with an effective amount of a steroid selected from the group consisting of cortisone, hydrocortisone and an isomer of epimer thereof

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4,757,057

OLIGO-HETEROPOLYSACCHARIDES HAVING A HEPARIN-LIKE ACTIVITY METHOD FOR THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS BASED THEREON

Fernando Fussi, Lesmo, and Gianfranco Fedeli, Milan, both of Italy, assignors to Hepar Chimie S.A., Switzerland

Continuation of Ser. No. 347,026, Feb. 8, 1982, abandoned, which is a continuation of Ser. No. 931,295, Aug. 4, 1978, abandoned. This application Jan. 7, 1986, Ser. No. 816,838

Claims priority, application Italy, Aug. 9, 1977, 26608 A/77

Int. Cl.⁴ A61K *31/725*

U.S. Cl. 514—56 **3 Claims**

1. A method of increasing the antithrombotic activity of mammalian blood relative to the anticoagulant activity comprising administering to a mammal in need of treatment for thrombosis, an oligoheteropolysaccharide comprising depolymerized heparin containing sulfate groups in the quantity and in the positions characteristic of heparin wherein said oligoheteropolysaccharide has the following physico chemical properties:

(A) average molecular weight (determined with the Somogy method in comparison with commercial heparin) from 2600 to 5500 daltons;
(B) hexosamines after hydrolysis (reaction with p-dimethylamino benzaldehyde): 28%±2%;
(C) uronic acids after hydrolysis (reaction with carbazol): 31%±4%;
(D) organic $SO_4^{=}$ after hydrolysis (titration with naphtharsone): 30%±4%;
(E) molar ratios of uronic acids/hexosamines/$SO_4^{=}$ = 1/1/2;
(F) specific rotatory power of the aqueous solution $[\alpha]_D^{20} = +40° - +50°$;
(G) electrophoresis on cellulose acetate (pyridine/acetic acid/water (1:10:299)) pH 4.5 and development with toluidine blue = a single band with anodic mobility $U = 2.1 \times 10^{-4}\ cm^2 v^{-1} sec^{-1}$;
(H) powder of ivory color, amorphous and slightly hygroscopic;
(I) aqueous solution clear or slightly opalescent: and
(J) pH of 5% aqueous solution: 7–8.

4,757,058

PHOSPHONIC ACID ESTER PESTICIDES

Bernd-Wieland Krüger, Wuppertal; Bernd Baasner, Leverkusen; Hermann Hagemann, Leverkusen; Bernhard Homeyer, Leverkusen, and Benedikt Becker, Mettmann, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

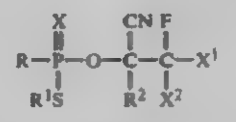
Filed Jul. 25, 1986, Ser. No. 891,003

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1985, [illegible]

Int. Cl.⁴ A01N *57/02; C07F 9/40*

U.S. Cl. 514—112 **10 Claims**

1. An α-cyano-(di)thiophosphonic acid ester of the formula



$$R-\overset{\overset{X}{\|}}{\underset{\underset{R^1S}{|}}{P}}-O-\overset{\overset{CN}{|}}{\underset{\underset{R^2}{|}}{C}}-\overset{\overset{F}{|}}{\underset{\underset{X^2}{|}}{C}}-X^1$$

in which

X represents oxygen or sulphur,
R represents alkyl with 1 to 4 carbon atoms,
R^1 represents alkyl with 1 to 6 carbon atoms,
R^2 represents alkyl which has 1 to 4 carbon atoms and
X^1 and X^2 represent fluorine.

2. A method of combating insects, acarids or nematodes which comprises applying to such insects, acarids or nematodes an insecticidally, acaricidally or nematocidally effective amount of a compound according to claim 1 and a diluent.

4,757,059

METHOD FOR TREATING CONVULSIONS AND EPILEPSY WITH ORGANIC COPPER COMPOUNDS

John R. J. Sorenson, Little Rock, Ark., assignor to International Copper Research Association, New York, N.Y.

Division of Ser. No. 640,731, Aug. 14, 1984, Pat. No. 4,670,428, which is a continuation-in-part of Ser. No. 344,309, Feb. 1, 1982, abandoned, which is a continuation of Ser. No. 154,132, May 29, 1980, abandoned. This application Dec. 8, 1986, Ser. No. 939,219

Int. Cl.⁴ A61K *31/555, 31/60*

U.S. Cl. 514—159 **20 Claims**

1. A method of treating convulsive tremors or convulsive seizures comprising administration to a mammal of a therapeutically effective amount of an organic compound of copper having anticonvulsant activity selected from the group consisting of a copper complex of an amino acid and a mixture of copper complexes of amino acids.

4,757,060

NON-STEROIDAL ANTI-INFLAMMATORY COMPOSITIONS PROTECTED AGAINST GASTROINTESTINAL INJURY WITH A COMBINATION OF CERTAIN H_1 AND H_2 RECEPTOR BLOCKERS

Alison B. Lukacsko, Robbinsville; Randy J. Kosio, East Windsor, and Joseph J. Piala, Metuchen, all of N.J., assignors to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of Ser. No. 836,264, Mar. 4, 1986, abandoned. This application Apr. 29, 1986, Ser. No. 867,882

Int. Cl.⁴ A61K *31/60, 31/62, /615*

U.S. Cl. 514—160 **17 Claims**

1. A NSAID composition having reduced potential for NSAID induced gastrointestinal injury comprising

(a) an analgesic or antiinflammatory amount of a NSAID selected from the group consisting of aspirin and pharmaceutically acceptable salts of aspirin; and
(b) a protective amount of:
  (i) an H_1 receptor blocker selected from the group consisting of diphenhydramine and pharmaceutically acceptable salts of diphenhydramine; and
  (ii) an H_2 receptor blocker selected from the group consisting of cimetidine, ranitidine, famotidine and pharmaceutically acceptable salts thereof; said NSAID being present in the composition in an amount of from about 10 mg to about 100 mg per kg per day, based on the weight of a subject to whom the composition is being administered; said H_1 receptor blocker being present in the composition in an amount of from about 2.5 g to about 500 mg per kg per day, based on the weight of a subject to whom the composition is being administered; and said H_2 receptor being present in the composition in an amount of from about 10 g to about 1 g per kg per day, based on the weight of a subject to whom the composition is being administered.

4,757,061

4-AMINO ANDROSTENDIONE DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Franco Faustini, Milan; Roberto D'Alessio, Cinisello Balsamo; Vittoria Villa, Milan; Enrico di Salle, Milan, and Paolo Lombardi, Milan, all of Italy, assignors to Farmitalia Carlo Erba, S.p.A., Milan, Italy

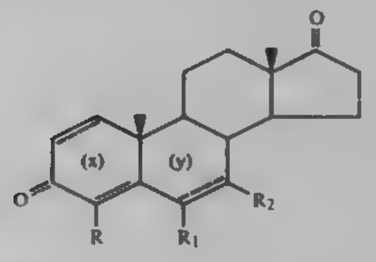
Filed Feb. 10, 1986, Ser. No. 828,637

Claims priority, application United Kingdom, Feb. 15, 1985, [illegible]

Int. Cl.⁴ A61K *31/56; C07J 1/00*

U.S. Cl. 514—177 **6 Claims**

1. A compound of formula (I)



(I)

wherein

R is NH_2;
one of R_1 and R_2 is hydrogen and the other is hydrogen, C_1–C_6 alkyl, C_2–C_6 alkenyl or C_2–C_6 alkynyl;
and the symbol ═══ indicates that each of (x) and (y), independently, is a single bond or a double bond,

and the pharmaceutically acceptable salts thereof.

5. A method of producing aromatase inhibition in a patient in need of it, the said method comprising administering an effective amount of a compound according to claim 1.

4,757,062

SUBSTITUTED BENZOATE ESTER PRODRUGS OF ESTROGENS

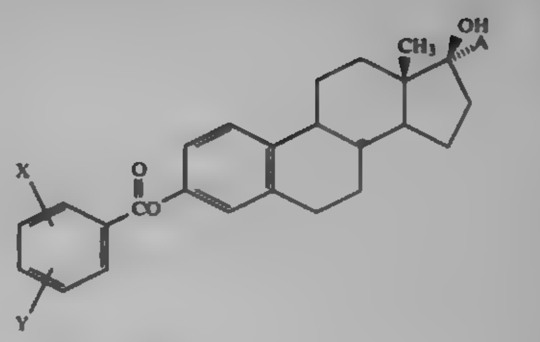
Bruce J. Aungst, and Munir A. Hussain, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 1, 1985, Ser. No. 793,892

Int. Cl.⁴ A61K *31/56; C07J 1/00*

U.S. Cl. 514—182 **32 Claims**

1. A compound of the formula:



(I)

wherein

A is H or C≡CH;
Y is H;
X is NR^1R^3 or OR^2;
R^1 is H, alkyl of 1–4 carbon atoms, or COR^3;
R^2 is COR^3; and
R^3 is H or alkyl of 1–4 carbon atoms;

or a pharmaceutically suitable salt thereof.

4,757,063

PROCESS FOR THE TREATMENT OF DISEASES CAUSED BY OXIDATIVE STRESS

Michael J. Parnham, Pulheim, Fed. Rep. of Germany, assignor to A. Nattermann & CIE. GmbH, Cologne, Fed. Rep. of Germany

Filed May 12, 1987, Ser. No. 49,728

Claims priority, application Fed. Rep. of Germany, May 20, 1986, [illegible]

Int. Cl.⁴ A61K *31/33*

U.S. Cl. 514—183 **1 Claim**

1. Process for the treatment of diseases caused by oxidative stress in human beings comprising administering to said human being a compound comprising 2-phenyl-1.2-benzisoselenazol-3(2H)-one as active agent in an amount of 10 to 2000 mg per day.

4,757,064

PHARMACOLOGICALLY ACTIVE BICYCLIC LACTAMS

Mingzhe Yang; Yan-rong Chen; Gengtao Liu, and Liang Huang, all of Beijing, China, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany and Chinese Academy of Medical Sciences, Beijing, China

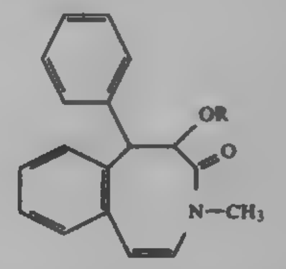
Filed Jan. 20, 1987, Ser. No. 4,985

Claims priority, application United Kingdom, Jan. 20, 1986, 8601256

Int. Cl.⁴ A61K *31/395; C07D 225/06*

U.S. Cl. 314—183 **6 Claims**

1. A compound of the formula



wherein R represents hydrogen or an acyl group having 1 to 4 carbon atoms.

6. A method of treating acute or chronic viral hepatitis, liver intoxication, hypoxia or amnesia comprising administering to a

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patient in need of such treatment an effective amount of a compound according to claim 1.

4,757,065
CEPHALOSPORINS

Rolf Angerbauer; Michael Boberg; Karl G. Metzger, all of Wuppertal, and Hans-Joachim Zeiler, Velbert, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

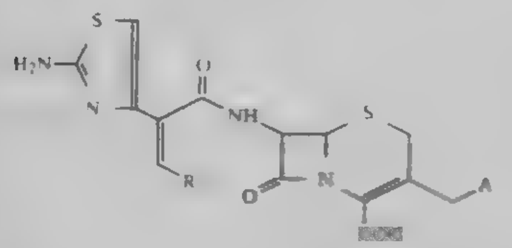
Filed Nov. 20, 1984, Ser. No. 673,246

Claims priority, application Fed. Rep. of Germany, Nov. 30, [illegible]

Int. Cl.⁴ C07D *501/38;* **A61K** *31/545*

U.S. Cl. 514—203 **11 Claims**

1. A compound of the formula



in which

R_1 represents C_1–C_5-alkyl, and

A is a pyridinium radical which is substituted by hydroxy-C_1–C_4-alkyl, carboxy C_1–C_4-alkyl, C_1–C_4-alkoxycarbonyl -C_1–C_4-alkyl, formyl-C_1–C_4-alkyl, C_1–C_4-alkylcarbonyl-groups of which can also additionally be substituted by hydroxyl and the carbonyl group of which can also be in ketalized form, carbamoylsubstituted C_1–C_4-alkyl, which can also be further substituted on the nitrogen by hydroxyl, sulpho-C_1–C_4-alkyl, l-hydroxy-1-sulphomethyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, which can also be substituted by hydroxyl, C_1–C_4-alkylthio-C_1–C_4-alkyl, C_1–C_4-alkylsulphinyl-C_1–C_4-alkyl, C_1–C_4-alkylsulphonyl-C_1–C_4-alkyl, C_3-alkenyloxy-C_1–C_4-alkyl, C_3-alkenylthio-C_1–C_4-alkyl, C_3-alkenylsulphinyl-C_1–C_4-alkyl, C_3-alkenylsulphonyl-C_1–C_4-alkyl, cyano-C_1–C_3-alkyl, epoxy-C_2–C_3-alkyl, trifluoromethyl, hydroximinomethyl, C_1–C_3-alkyloximinomethyl, C_3–C_4-alkenyl, which can also be substituted by hydroxyl, C_3-alkinyl, C_3–C_6-cycloalkyl, and C_3–C_6-cycloalkyl-methyl, it being possible for the ring also to be substituted by hydroxyl, by halogen, or by carboxyl, C_1–C_4-alkoxycarbonyl, cyano, C_5–C_6-cycloalkenyl, C_1–C_4-alkoxy, it being possible for these alkoxy groups to be additionally substituted by hydroxyl, carboxyl or C_1–C_4-alkoxycarbonyl, epoxy-C_2–C_3alkoxy, C_3-alkenyloxy, C_3-alkinyloxy, aryloxy, amino, C_1–C_5-alkylamino, C_1–C_4-dialkylamino, C_1–C_4-alkoxycarbonylamino, C_1–C_4-alkylcarbonylamino, N-C_1–C_4-alkyl- and dialkylcarbamoylamino, C_1–C_4-alkylsulphonylamino, hydroxyl, C_1–C_4-alkylthio, which can also be substituted by hydroxyl, C_1–C_4-alkylsulphinyl, which can also be substituted by hydroxyl, C_1–C_4-alkylsulphonyl, which can also be substituted by hydroxyl, carboxymethylthio and C_1–C_4-alkoxycarbonylmethylthio, and C_1–C_4-alkoxycarbonymethyl-sulphinyl and -sulphonyl, C_3-alkenylthio, C_3-alkenylsulphinyl, C_3-alkenylsulphonyl, phenyl and benzyl, which can also be, substituted by halogen, 2′-thienyl and 3 ′thienyl, formyl and ketalized formyl, C_1–C_4-alkylcarbonyl, which can also be substituted by hydroxyl and can be in ketalized form, benzoyl, C_1–C_4-alkylcarbonylamino, formylamino, carboxyl, and C_1–C_4-alkoxycarbonyl, and onto which an optionally substituted 5-membered or 6-membered ring can be fused, which can contain up to two hetero-atoms and up to two double bonds, or a pharmaceutically acceptable salt thereof or ester thereof which can be split under physiological conditions.

4,757,066
COMPOSITION CONTAINING A PENEM OR CARBAPENEM ANTIBIOTIC AND THE USE OF THE SAME

Takashi Shiokari; Seigo Ueda; Masayuki Iwata, and Yukinori Kawahara, all of Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Filed Oct. 10, 1986, Ser. No. 917,793

Claims priority, application Japan, Oct. 15, 1984, 59-215683; Jan. 28, 1985, 60-14001; Oct. 24, 1985, 60-238283; Apr. 10, 1986, [illegible]

Int. Cl.⁴ A61K *31/40*

U.S. Cl. 514—210 **116 Claims**

1. An antibiotic composition comprising:

an antibiotic selected from the group consisting of penem antibiotics and carbapenem antibiotics having renal toxicity; and

a pharmaceutically acceptable N-acylated derivative of an amino acid wherein the amino group and the carboxylic acid group are attached to a saturated aliphatic carbon chain or carbon atom, or a salt thereof in an amount at least sufficient to reduce or eliminate said renal toxicity.

4,757,067
THERAPEUTIC APPLICATION OF N-SUBSTITUTED 2-AMINOMETHYLENE-1,3-INDANEDIONES

Guillaume Le Baut, St. Sebastien sur Loire; Louis Sparfel, Reze-les-Nantes; Marie-Helene Creuzet, Bordeaux; Claude Feniou; Henri Pontagnier, both of Pessac, and Gisele Prat, Talence, all of France, assignors to Societe Cortial, S.A., Paris, France

Division of Ser. No. 757,499, Jul. 22, 1985. This application Jan. 21, 1987, Ser. No. 5,657

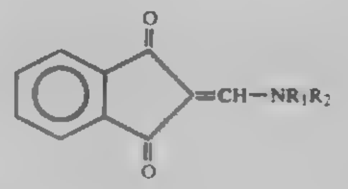
Claims priority, application France, Jul. 20, 1984, 84 11678

Int. Cl.⁴ A61U *31/34, 31/40, 31/55, 31/135, 31/335, 31/445*

U.S. Cl. 514—213 **20 Claims**

1. A method for treating edema, comprising administering to a host suffering from edema a pharmaceutical composition comprising:

(i) a pharmaceutically effective quantity of at least one product having the following structural formula:



wherein:

R_1 is a hydrogen atom or $C_{1\text{-}6}$ alkyl group; and

R_2 is a straight or branched $C_{1\text{-}4}$ alkyl group, a cyclopropylmethyl group, a 2-furyl methyl group, a benzyl group, or a phenyl group; or

NR_1R_2 is a nitrogenous heterocyclic compound $N(CH_2)_n$ where n is 4, 5, or 6; and

(ii) a pharmaceutically or veterinarily acceptable excipient.

4,757,068
LACTAMS AND BICYCLIC LACTAMS USEFUL AS CHOLECYSTOKININ ANTAGONISTS

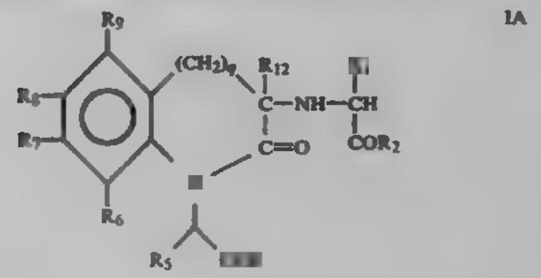
William H. Parsons, Rahway, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 624,857, Jun. 26, 1984, abandoned. This application Dec. 4, 1985, Ser. No. 804,578

Int. Cl.⁴ A61K *31/55*

U.S. Cl. 514—213 **2 Claims**

1. A method of antagonizing the binding of cholecystokinins to cholecystokinin receptors in a mammal having a gastrointestinal disorder which comprises administering to said mammal an effective amount of a compound having the formula:



1A

wherein:

R and R_2 are independently hydroxyl, loweralkoxy, aryloxy, aralkoxy, and $NR^{10}R^{11}$ wherein R^{10} and R^{11} are independently hydrogen, loweralkyl, loweralkenyl, acyloxyloweralkyl, aryl, aralkyl, carboxyloweralkyl, carboxamido loweralkyl, substituted loweralkyl wherein the substituents are monohydroxy, dihydroxy, or acylamino;

R_1 is

- hydrogen;
- alkyl of from 1 to 12 carbon atoms which include branched, cyclic and unsaturated alkyl groups;
- substituted loweralkyl wherein the substituent can be halo, hydroxy, carboxy, carboxamido, loweralkylthio, loweralkoxy, loweralkoxycarbonyl, loweraralkoxycarbonyl, amino, loweralkylamino, lowerdialkylamino, acylamino, substituted loweralkylamino wherein the substituent can be halo, hydroxy, alkoxy or cyano; arloweralkylamino; cyclic amino; oxo, thio or ureido; aryloxy; arylthio; aralkyloxy; aralkylthio; benzofused cycloalkyl or bicycloalkyl of from 8–12 carbon atoms;
- aryl or heteroaryl which may be mono-, di- or trisubstituted by loweralkyl, hydroxy, loweralkoxy, halo, amino, acylamino, loweralkylthio or aminoloweralkyl;
- benzofused cycloalkyl or bicycloalkyl of from 8 to 12 carbon atoms;
- arloweralkyl; arloweralkenyl; heteroloweralkyl and heteroloweralkenyl in which the aryl or heteroaryl rings may be mono-, di- or tri-substituted by halo, loweralkyl, hydroxy, loweralkoxy, amino, loweralkylamino, diloweralkylamino, aminoloweralkyl, acylamino, carboxy, haloloweralkyl, nitro, cyano or sulfonamido;
- aralkyl or heteroaralkyl which include branched loweralkyl groups;
- substituted aralkyl or substituted heteroaralkyl which include branched loweralkyl groups wherein the loweralkyl groups can be substituted by amino, acylamino, or hydroxyl and the aryl and heteroaryl groups can be substituted by halo, dihalo, loweralkyl, hydroxy, loweralkoxy, arloxy, arolyl, arylthio, amino, aminoloweralkyl, loweralkanoylamino, aroylamino, lowerdialkylamino, loweralkylamino, hydroxy, hydroxyloweralkyl, trihaloloweralkyl, nitro, cyano, or sulfonamido;
- any of the arloweralkyl or alkenyl and heteroloweralkyl or alkenyl groups described above in which the aryl or heteroaryl ring is partially or completely hydrogenated;
- substituted loweralkyl having the formula $R_A^1(CH_2)_n$—Q—$(CH_2)_m$ wherein n is 0–2, m is 1–3, R_A^1 is aryl or heteroaryl optionally substituted by amino, lowerdialkylamino, loweralkylamino, hydroxy, hydroxyloweralkyl, aminoloweralkyl, trihaloloweralkyl, cyano, nitro, sulfonamido, aroyl, loweralkyl, halo, dihalo, and loweralkoxy, and Q is O, S, SO, SO_2, N—R_B^1, $CONR_C^1$, NR_C^1CO, CH=CH wherein R_B^1 is hydrogen, loweralkyl, aryl, aralkyl, loweralkanoyl, or aroyl, and R_C^1 is hydrogen, or loweralkyl;

R_3 is hydrogen, or loweralkyl;

R_4 is hydrogen, loweralkyl, aryl, or substituted aryl wherein the substituent is halo, alkyl, or alkoxy;

R_5 is hydrogen, loweralkyl, or aryl;

R_6 R_7, R_8 and R_9 can be the same or different or each can independently be hydrogen, loweralkyl, loweralkoxy, or [illegible]

R_{12} is loweralkyl;

n is 1–4;

q is 2; or pharmaceutically acceptable salts thereof.

4,757,069
PYRIDAZODIAZEPINE DERIVATIVES

[illegible] Lawton, Hitchin, and Sally Redshaw, Stevenage, both of England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Nov. 24, 1987, Ser. No. 124,749

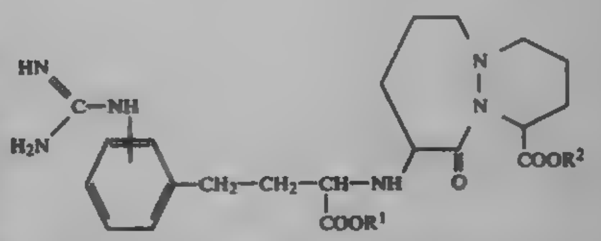
Claims priority, application United Kingdom, Dec. 15, 1986, [illegible]

Int. Cl.⁴ A61K *31/33, 31/50;* **C07D** *403/04, 401/04*

U.S. Cl. 514—221 **39 Claims**

1. A pyridazodiazepine compound of the formula

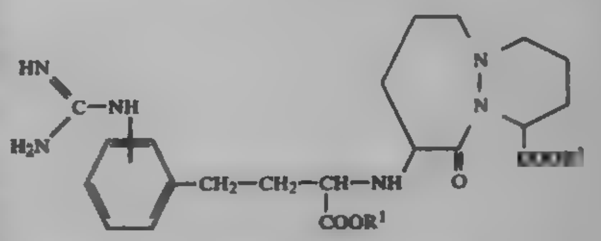
I



wherein R^1 and R^2 each independently are hydrogen, C_1–C_{10}-alkyl, adamantyl-(C_1–C_4-alkyl) or (C_2–C_6-alkanoyloxy)-(C_1–C_4-alkyl), as well as pharmaceutically acceptable salts thereof.

27. A method of treating or preventing high blood pressure which comprises administering to a patient requiring such treatment an effective amount of a pyridazodiazepine derivative of the formula

I



wherein R^1 and R^2 each independently are hydrogen, C_1–C_{10}-alkyl, adamantyl-(C_1–C_4-alkyl) or (C_2–C_6-alkanoyloxy)-(C_1–C_4-alkyl), or a pharmaceutically acceptable salt thereof.

4,757,070
3-OXADIAZOLYL-5-AMINOALKYL-BETA-CARBOLINE DERIVATIVES COMPOSITIONS AND USE

[illegible], all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Division of Ser. No. 944,165, Dec. 22, 1986, Pat. No. 4,731,365. This application Dec. 8, 1987, Ser. No. 130,049

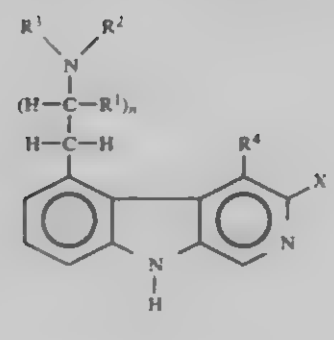
Claims priority, application Fed. Rep. of Germany, Dec. 20, [illegible]

Int. Cl.⁴ A61K *31/435, 31/535;* **C07D** *471/04*

U.S. Cl. 514—228.2 **9 Claims**

1. A 5-Aminoalkyl-beta-carboline of the formula

VOL 1092 ISS 2 JL 12 1988 UMI



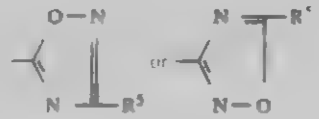
wherein

n is 0 or 1,

R^1 is hydrogen or lower alkyl,

R^2 and R^3 each independently is hydrogen; alkyl; alkyl substituted by OH, lower alkoxy, mercapto, lower alkylthio, phenyl, amino, amino substituted by lower alkyl or a 5–6-member aliphatic N-containing heterocycle which can contain an additional O, N or S atom and can be substituted by 1 or 2 lower alkyl groups; alkanoyl; phenyl; or a 5–6-member aromatic heterocycle containing 1 or 2 O, N or S atoms; or together with the adjoining N-atom R^2 and R^3 form a 5–6-member aliphatic N-containing heterocycle which can contain an additional O, N or S atom and can be substituted by 1 or 2 lower alkyl groups,

R^4 is hydrogen, lower alkyl or lower alkoxy-lower-alkyl and X is an oxadiazolyl group of the formula



wherein

R^5 is H, lower alkyl or C_{3-7}-cycloalkyl,

and "lower" refers to 1–6 carbon atoms.

8. A method of achieving an anxiolytic effect comprising administering to a patient an amount of a compound of claim 1.

4,757,071

1,4-DIHYDROPYRIDINE DERIVATIVES, AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME, USEFUL FOR TREATING CARDIOVASCULAR DISEASES

Hiroyasu Koyama, Ageo; Yoshikuni Suzuki, Ohmiya, and Koichiro Hagihara, Itami, all of Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

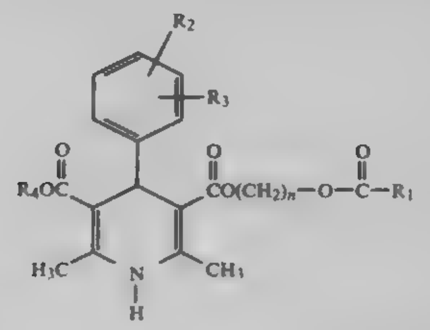
Filed Dec. 9, 1985, Ser. No. 806,454

Claims priority, application Japan, Dec. 14, 1984, 59-262942; Oct. 21, 1985, 60-233349; Oct. 21, 1985, 60-233350; Dec. 2, [illegible]

Int. Cl.⁴ C07D *401/12, 407/12, 409/12;* A61K *31/455*

U.S. Cl. 514—247 13 Claims

1. A compound of formula I



(I)

wherein

R_1 represents a furyl or thienyl group; a 6-membered unsaturated heterocyclic group having one nitrogen atom in in the ring said unsaturated heterocyclic group being optionally substituted at a carbon atom by one or more substituents selected from the group consisting of halogen atom, $CH_{3-x}Cl_x(x=1 \text{ to } 3)$, amino, acetylamino, benzoylamino, lower alkoxy, phenoxy, lower alkoxy carbonyl or lower alkyl and further said unsaturated heterocyclic optionally being fused with a benzene ring or a benzene ring substituted with a lower alkyl or lower alkoxy group; or a 6-membered unsaturated heterocyclic group having two nitrogen atoms in the ring;

R_2 and R_3 both represent halogen atoms, or one of R_2 and R_3 represents a nitro or trifluoromethyl group and the other represents a hydrogen atom;

R_4 represents an alkyl group of 1–6 carbon atoms, an alkoxyalkyl group in which the alkyl portion has 1–6 carbon atoms and the alkoxy portion has 1–2 carbon atoms, or an ethoxyethoxymethyl group; and

n represents 2 or 3; or

pharmaceutically acceptable acid addition salts thereof.

12. A pharmaceutical composition for treatment of cardiovascular diseases comprising an effective amount of a compound of claim 1, or a pharmaceutically acceptable addition salt thereof and a pharmaceutically acceptable inert carrier.

4,757,072

CARCINOSTATIC AGENT

Hans-Joachim Kabbe, Leverkusen; Robert Bierling, Wuppertal, both of Fed. Rep. of Germany, and Ghanem Atassi, Brussels, Belgium, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 17, 1987, Ser. No. 26,800

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1986, 3611194

Int. Cl.⁴ A61K *31/505*

U.S. Cl. 514—257 2 Claims

1. A method of combating or inhibiting carcinoma of the colon and/or rectum comprising administering to a patient having a carcinoma of the colon and/or rectum a therapeutically effective amount for inhibiting carcinoma of the colon and/or rectum of the therapeutic composition comprising 8-amino-12-oxo-10,12-dihydroisoindolo[1,2-b]-quinazole.

4,757,073

ANTIPSYCHOTIC CYCLIC IMIDE DERIVATIVES OF 2-(4-BUTYLIPIPERAZIN-1-YL) PYRIDINES, COMPOSITIONS AND USE

James S. New; Walter G. Lobeck, Jr., both of Evansville, and Joseph P. Yevich, Newburgh, all of Ind., assignors to Bristol-Myers Company, New York, N.Y.

Filed Sep. 30, 1986, Ser. No. 899,695

Int. Cl.⁴ A61K *31/495;* C07D *401/14*

U.S. Cl. 514—252 7 Claims

1. A compound of Formula I

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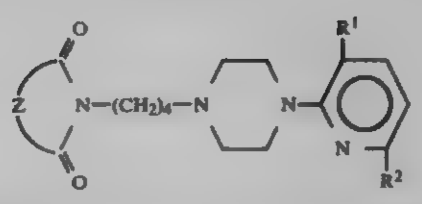
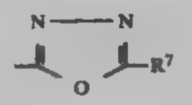


I

and the pharmaceutically acceptable acid addition salts thereof wherein

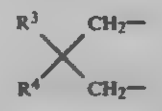
R^1 is selected from formyl, carbalkoxy, nitro, phenyl, and



wherein R^7 is lower alkyl;

R^2 is selected from hydrogen, halogen, lower alkyl, or lower alkoxy;

Z is selected from



(b)

R^3 and R^4 are independently selected from lower alkyl.

7. The method for ameliorating an undesirable psychotic state in a mammal comprising administration to said mammal an effective antipsychotic amount of a compound claimed in claim 1.

4,757,074

PIPERAZINYL BENZYL ACIDS HAVING ANTIHISTAMINE ACTIVITY

Geoffrey G. Coker, Bromley, England, and John W. A. Findlay, Chapel Hill, N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Division of Ser. No. 635,250, Jul. 27, 1984, abandoned. This application Feb. 24, 1986, Ser. No. 833,665

Claims priority, application United Kingdom, Aug. 1, 1983, 8320701

Int. Cl.⁴ A61K *31/495;* C07D *295/00*

U.S. Cl. 514—255 3 Claims

1. A compound selected from the group comprising:

(E)-3-(4-chloro-α-(4-methyl-1-piperazinyl)benzyl)-cinnamic acid;

3-(4-chloro-α-(4-methyl-1-piperazinyl)benzyl)benzoic acid;

2-(4-chloro-α-(4-methyl-1-piperazinyl)benzyl)benzoic acid;

4-(4-chloro-α-(4-methyl-1-piperazinyl)benzyl)benzoic acid;

3-(4-methoxy-α-(4-methyl-1-piperazinyl)benzyl)benzoic acid;

3-(4-chloro-α-(4-methyl-1-piperazinyl)benzyl)phenoxyacetic acid;

3-(4-chloro-α-(4-(3-methylbenzyl)-1-piperazinyl)benzyl)-phenoxyacetic acid;

3-(4-chloro-α-(4-(4-tert-butylbenzyl-1-piperazinyl)benzyl phenoxyacetic acid;

and pharmaceutically acceptable acid addition salt, esters and amides thereof.

2. A method of treating a human having elevated histamine levels which comprises administering to said human an effective antihistamine amount of the compound, pharmaceutically acceptable salt, ester or amide of claim 1 to said human.

4,757,075

TETRAZOLYLQUINAZOLINONES AS ANTI-HYPERURICEMIC AGENTS

Steven R. Wagner, Indianapolis, Ind., assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Filed Oct. 14, 1986, Ser. No. 918,[illegible]

Int. Cl.⁴ A61K *31/505*

U.S. Cl. 514—259 5 Claims

1. A method of reducing the level of uric acid in the blood which comprises administering orally, to a human in which a reduction of the level or uric acid in the blood is desired, and effective amount, for reducing the level of uric acid in the blood, of 3-(1H-tetrazol-5-yl)-4(3H)-quinazolinone or a pharmaceutically acceptable salt thereof.

4,757,076

METHOD OF INHIBITING AROMATASE

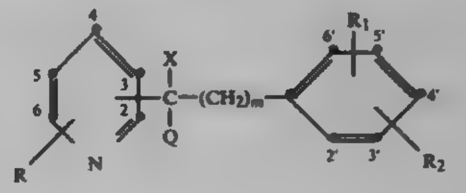
Kenneth S. Hirsch, New Palestine, and Harold M. Taylor, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Jun. 18, 1984, Ser. No. 621,595

Int. Cl.⁴ A61K *31/44, 31/435*

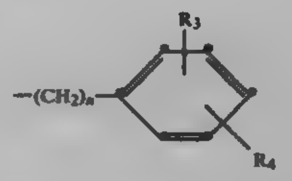
U.S. Cl. 514—277 16 Claims

1. A method of inhibiting aromatase in a mammal which comprises administering to said mammal an aromatase inhibiting amount of a compound of the formula



wherein

Q is hydrogen or



m and n are independently 0 or 1;

R is hydrogen or methyl;

R_1, R_2, R_3, and R_4 are independently hydrogen, methyl, C_1–C_3 alkoxy, halo, nitro, or trifluoromethyl, or when taken together, R_1 and R_2, and/or R_3 and R_4 are methylenedioxy; and

X is hydrogen, hydroxy, methyl, C_1–C_3 alkoxy, C_1–C_3 alkylthio, di-(C_1–C_3alkyl)amino, or halo, with the proviso that whenever one or both of m or n is 1, the benzene ring to which the respective methylene group is attached must be substituted by at least one substituent other than hydrogen;

or a pharmaceutically acceptable salt thereof.

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4,757,077

BIS-INDOLE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Csaba Szántay; Lajos Szabó; Katalin Honty; Tibor Keve; Tibor Acs; Sándor Eckhardt; János Sugar; Zsuzsa Somfai; Éva Iván, and Zsuzsa Kneffel, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar R.T., Budapest, Hungary

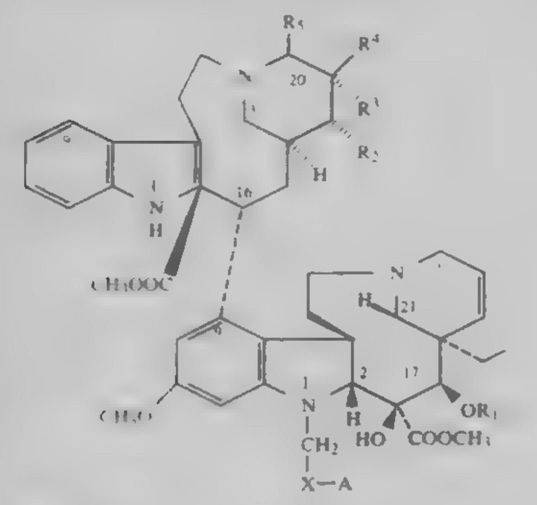
Filed Jun. 12, 1986, Ser. No. 873,540

Claims priority, application Hungary, Jun. 12, 1985, 2303/85

Int. Cl.⁴ A61K *31/475;* **C07D** *519/04*

U.S. Cl. 514—283 **4 Claims**

1. Bis-indole derivatives of the formula (I)



(I)

wherein

R_1 is a hydrogen atom or an acetyl group.

R_2 is a hydrogen atom;

R_3 is an ethyl group of α-position;

R_4 is a hydroxyl group of β-position; and

R_5 is a hydrogen atom;

A is a hydroxyethyl group; and

X is a sulphur atom

and pharmaceutically acceptable acid addition salts thereof.

4. A pharmaceutical composition comprising an effective amount of a bis-indole derivative of the formula (I) or a pharmaceutically acceptable acid addition salt thereof as the active ingredient, wherein R_1, R_2, R_3, R_4, R_5, X and A are as defined in claim 1, and a pharmaceutically acceptable carrier, additive or mixture thereof

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4,757,078

CYCLIC ARYL HYDROXAMIC ACIDS, DERIVATIVES THEREOF AND METHOD OF USE AS ANTI-ALLERGY AGENTS

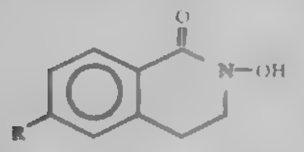
Raj N. Misra, Hopewell, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Nov. 28, 1986, Ser. No. 936,064

Int. Cl.⁴ A61K *31/235;* **C07D** *217/22*

U.S. Cl. 514—309 **11 Claims**

1. A compound having the structure



wherein R is H or arylalkyl, which has the structure aryl-$(CH_2)_x$—wherein x is 1 to 10 and aryl refers to a monocyclic or bicyclic aromatic group having from 6 to 10 carbons in the aromatic ring which may be unsubstituted or substituted with 1 or 2 lower alkyl groups, 1 or 2 lower alkoxy groups and/or 1 or 2 hydoxy groups; and alkyl or lower alkyl by itself or as part of another group refers to straight or branched chain radicals having 1 to 12 carbons, and including pharmaceutically acceptable acid-addition salts thereof.

9. A method of inhibiting leukotriene biosynthesis to treat inflammation or psoriasis, which comprises administering to the circulatory system of a mammalian host an effective amount of a compound as defined in claim 1.

4,757,079

ANTI-HYPERTENSIVE PIPERIDINE COMPOUNDS

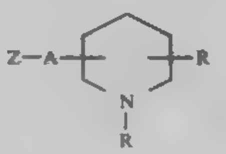
Allan P. Gray, Rockville, Md., assignor to Dynamac Corporation, Rockville, Md.

Filed Jun. 24, 1986, Ser. No. 877,738

Int. Cl.⁴ A61K *31/445;* **C07D** *211/10, 211/12, 211/14*

U.S. Cl. 514—319 **8 Claims**

1. A compound of the formula:



wherein

Z is a bicyclic aryl group selected from naphthyl, quinolyl, isoquinolyl, idenyl and indolyl, which group may be unsubstituted or may bear a substituent selected from halo, alkyl, alkoxy, nitro and amino;

A is an ethenyl group which may be lower alkyl-substituted;

R is selected from H, lower alkyl, lower alkenyl and hydroxyethyl;

R' is H or lower alkyl;

or a pharmaceutically acceptable acid addition salt thereof.

8. A method of reducing hypertension in a patient, comprising administering to said patient a therapeutically effective amount of the compound of claim 1.

4,757,080

1,4-DIHYDROPYRIDINE DERIVATIVES

Helmut Schickaneder, Eckental; Peter Mörsdorf, Langenzenn; Armin Buschauer; Walter Schunack, both of Berlin; Heidrun Engler, Cadolzburg; Hartmut Vergin, and Kurt H. Ahrens, both of Nürnberg, all of Fed. Rep. of Germany, assignors to Heumann Pharma GmbH & Co., Nuremberg, Fed. Rep. of Germany

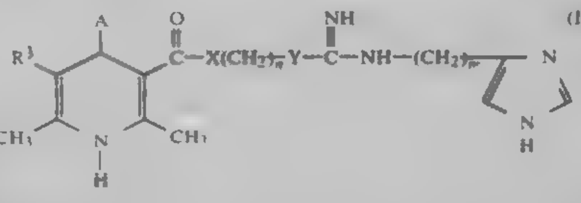
Filed May 19, 1987, Ser. No. 51,300

Claims priority, application Fed. Rep. of Germany, Jun. 24, 1986, [illegible]

Int. Cl.⁴ A61K *31/44;* **C07D** *401/12*

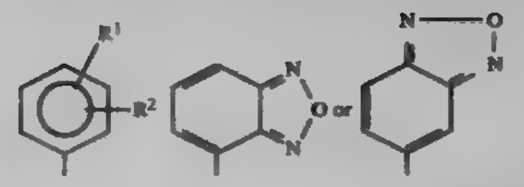
U.S. Cl. 514—338 **6 Claims**

1. A 1,4-dihydropyridine compound of the following formula I



(I)

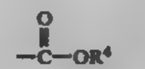
wherein A is



wherein

R^1 and R^2, which may be identical or different, are each a hydrogen atom, a straight or branched chain, C_1–C_4 alkyl radical, a substituted such radical bearing at least one halogen atom, C_1 to C_4 alkoxy group or phenyl group, a halogen atom, a nitro group or a trifluoromethyl group;

R^3 is a nitro group or the group



$$-\overset{\overset{\large O}{\|}}{C}-OR^4$$

wherein R^4 is a straight or branch chain C_1–C_4 alkyl radical or a substituted such radical bearing at least one halogen or C_1–C_4 alkoxy group;

X is an oxygen atom or NH group;

Y is an NH group or a valence bond;

n is an integer from 1 to 16; and

m is 2 or 3;

or a physiologically acceptable salt thereof.

4,757,081

1,2,6-TRIPHENYL-4(1H)-PYRIDINONE DERIVATIVES, AND USES AS FUNGICIDAL AGENTS

Norihisa Yonekura, Shizuoka; Takashi Yumita, Hamamatsu; Yukio Nezu, Fujieda; Yoshiyuki Kojima, Kakegawa; Shinichiro Maeno, and Shigeharu Yaguchi, both of Shizuoka, all of Japan, assignors to Kumiai Chemical Industry Co., Ltd. and Ihara Chemical Industry Co., Ltd., both of Tokyo, Japan

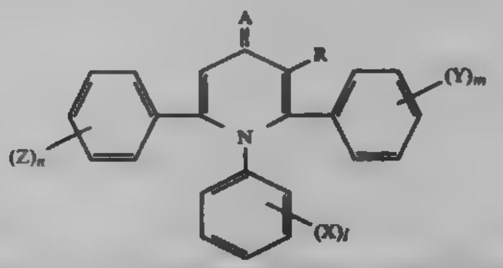
Filed Mar. 26, 1987, Ser. No. 29,944

Claims priority, application Japan, Mar. 26, 1986, 61-67430; May 19, 1986, 61-114030; Aug. 5, 1986, 61-183876

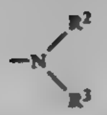
Int. Cl.⁴ A61K *31/44;* **C07D** *213/62, 213/63, 401/04*

U.S. Cl. 514—345 **13 Claims**

1. A 4(1H)-pyridinone derivative represented by the formula



wherein X, Y and Z are the same or different and are group, a hydroxy group, aldehyde group (—CHO), a lower alkyl group, a halogen-substituted lower alkyl group, a lower cyanoalkyl group, a lower hydroxyalkyl group, a lower alkoxyalkyl group, a lower alkoxy group, a halogen-substituted lower alkoxy group, a lower alkoxyalkoxy group, a lower alkenyl group, a lower alkenyloxy group, a lower alkynyl group, a lower alkynyloxy group, a lower alkanoyl group, a lower alkanoyloxy group, a phenyl group, a phenoxy group, a carbamoyl group, a lower alkylcarbamoyloxy group, a carboxyl or carboxylate group of the formula —$COOR^1$ where R^1 is a hydrogen atom or a lower alkyl group, or a substituted or unsubstituted amino group of the formula



$$-N\begin{matrix}\diagup R^2\\ \diagdown R^3\end{matrix}$$

where R^2 and R^3 are the same or different and are each a hydrogen atom, a lower alkyl group or a lower alkanoyl group; or X, Y and Z are independently a group of the formula —$(O)_p$—S—R^4 where R^4 is a lower alkyl group and p is an integer of 0 to 3; or X, Y and Z are independently a trimethylene group or a methylene-dioxo group bonded to and bridging between the adjacent two carbon atoms of the same benzene ring to which X, Y or Z is linking so that X, Y or Z taken together with said two adjacent two carbon atoms of the same benzene ring forms a 5-membered ring,

l, m and n are independently an integer of 0 to 5,

R is a halogen atom, a cyano group, a lower alkyl group, a halogen-substituted lower alkyl group, a lower alkoxy group, a lower alkenyl group, a lower alkynyl group, a phenyl group, a benzyl group, a trimethylsilylethynyl group, a carboxyl or carboxylate group of the formula —$COOR^1$ where R^1 is as defined above, or a substituted methyl group of the formula —CH_2OR^5 where R^5 is a hydrogen atom, a lower alkyl group or a benzoyl group,

A is an oxygen atom or a sulfer atom, provided that when R is methyl and A is an oxygen atom, l, m and n do not denote zero simultaneously; and provided that when R and X are each a methyl group, A is an oxygen atom and l is l, m and n do not denote zero, and a salt of the compound of the formula (I) above.

13. A fungicidal composition for agricultural and horticultural utilities, which comprises a compound of the formula (I) as defined in claim 1 or a salt thereof as the active ingredient, in combination with a carrier for the active ingredient.

4,757,082

METHOD OF INHIBITING AROMATASE

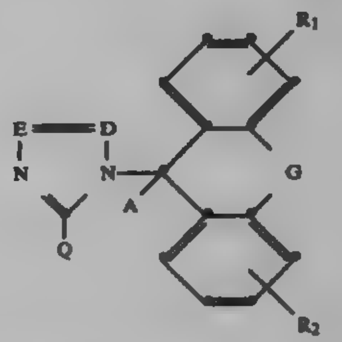
Kenneth S. Hirsch, New Palestine, and Harold M. Taylor, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Jun. 18, 1984, Ser. No. 621,406

Int. Cl.⁴ A61K *31/33, 31/41, 31/44, 31/415*

U.S. Cl. 514—396 **18 Claims**

1. A method of inhibiting aromatase in a mammal which comprises administering to said mammal an aromatase inhibiting amount of a compound of the formula



wherein

Q is hydrogen or methyl;

E and D are independently CH or N;

A is hydrogen, C_1–C_3 alkyl, pyridyl, phenyl, or phenyl substituted with halo, trifluoromethyl, C_1–C_3 alkyl, or C_1–C_3 alkoxy;

G is a bond, —O—, —S—, —CH_2—, —CH_2CH_2—, —CH═CH—, —CH_2—O—, or —CH_2—S—; and

R_1 and R_2 are independently hydrogen, C_1–C_3 alkyl, trifluo-

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romethyl, halo, or C_1–C_3 alkoxy, or a pharmaceutically acceptable salt thereof.

4,757,083

NOVEL PYRROLIDINYLAMIDE ESTER DERIVATIVES HAVING ANTI-PROLYL ENDOPEPTIDASE ACTIVITY AND SYNTHESIS AND USE THEREOF

Naoki Higuchi; Masayuki Saitoh; Masaki Hashimoto, all of Osaka; Haruhazu Fukami, Kyoto, and Takaharu Tanaka, Osaka, all of Japan, assignors to Suntory Limited, Osaka, Japan

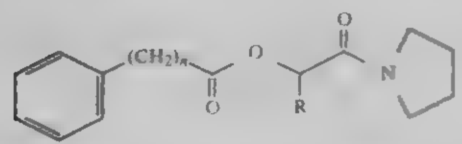
Filed Dec. 1, 1986, Ser. No. 936,445

Claims priority, application Japan, Nov. 29, 1985, 60-268994

Int. Cl.⁴ A61K *31/40;* **C07D** *295/18*

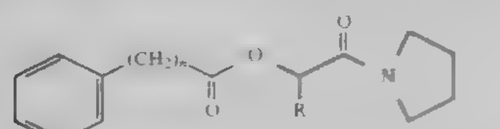
U.S. Cl. 514—423 **5 Claims**

1. A pyrrolidinylamide ester derivative of the formula:



wherein n is an integer of 3 to 5 and R is a straight or branched alkyl having 3 to 6 carbon atoms.

5. A pharmaceutical composition comprising a prolyl endopeptidase inhibiting amount of a compound of the formula:



wherein n is an integer of 3 to 5 and R is a straight or branched alkyl having 3 to 6 carbon atoms, together with a pharmaceutically acceptable carrier.

4,757,084

2,5-DIARYL TETRAHYDROTHIOPHENES AND ANALOGS THEREOF AS PAF-ANTAGONISTS

Tesfaye Biftu, Old Bridge, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

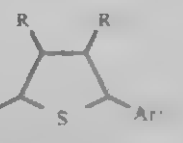
Continuation of Ser. No. 584,693, Feb. 29, 1984, abandoned.

This application Sep. 13, 1985, Ser. No. 776,191

Int. Cl.⁴ A61K *31/38;* **C07D** *333/12*

U.S. Cl. 514—438 **9 Claims**

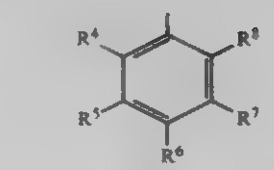
1. A compound of formula



wherein R and R^1 independently are

(a) hydrogen;
(b) lower alkyl or cycloalkyl of 1–6 carbon atoms;
(c) haloloweralkyl,
(d) halo;

Ar and Ar^1 are the same or different from each other and are phenyl or substituted phenyl of formula



where R^4–R^8 independently represent H, R^2O—, R^2S—, R^2SO, R^2SO_2—, CF_3O—, CF_3S—, CF_3SO—, CF_3SO_2—, R^2R^3N—, —NR^2COR^3, —$OCONH_2$, —$OCH_2CO_2R^2$, —$SO_2NR^2R^3$, —CO_2R^2, —$CONR^2R^3$, —$CR^2R^3R^4$, —$NR^2SO_2R^3$, COR^2, NO_2, or CN or R^4–R^5, R^5–R^6, R^6–R^7 and R^7–R^8 are joined together forming a bridge with the proviso that Ar and Ar^1 cannot be simultaneously phenyl,

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4,757,085

CARBAMOYLOXYTHIOPHENE FUNGICIDES

Werner Daum, Krefeld; Gerd Hänssler, Leverkusen, and Pieter Ooms, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

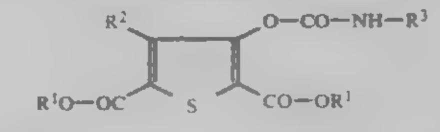
Filed Apr. 13, 1987, Ser. No. 37,918

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1986, 3613792

Int. Cl.⁴ A01N *43/02;* **C07D** *333/32*

U.S. Cl. 514—445 **13 Claims**

1. A carbamoyloxythiophene derivative of the formula

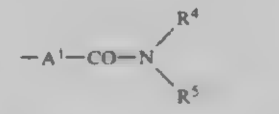


in which

R^1 represents alkyl alkoxalkyl, alkylthioalkyl, fluoroalkyl, cyanoalkyl, alkenyl, alkynyl, or cycloalkyl,

R^2 represents alkyl, or optionally substituted phenyl,

R^3 represents cyanoalkyl, the



$$-A^1-CO-N\begin{matrix}R^4\\R^5\end{matrix}$$

radical or the —A^2—CO—OR^6 radical, where

A^1 represents an alkylene radical,

A^2 represents an alkylene radical or denotes a direct bond,

R^4 and R^5, independently of one another, represent alkyl, or

R^6 represents alkyl.

4,757,086

N-BENZOYL-N'-(2,2,-DIFLUORO-3-METHYL-BENZO-1,4-DIOXANYL)-UREAS

Wilhelm Sirrenberg, Sprockhoevel; Albrecht Marhold, Leverkusen, and Benedikt Becker, Mettmann, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

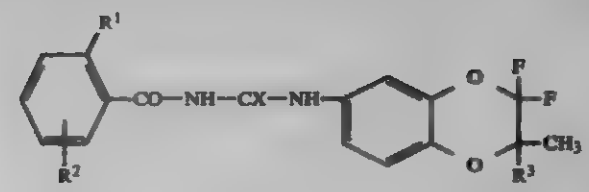
Filed Aug. 6, 1985, Ser. No. 762,980

Claims priority, application Fed. Rep. of Germany, Aug. 24, 1984, 3431219

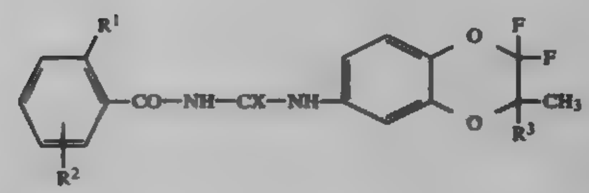
Int. Cl.⁴ A61K *31/335;* **C07D** *319/20*

U.S. Cl. 514—452 **11 Claims**

1. A mixture of compounds of the formula



and



in which

R^1 is halogen or alkyl,

R^2 is hydrogen, halogen or alkyl,

R^3 is hydrogen or methyl, and

X is oxygen or sulphur.

10. A method of combating insects and acarids which comprises applying to such insects or acarids or to an insect or acarid habitat an insecticidally or acaricidally effective amount of a mixture according to claim 1.

4,757,087

CARBACYCLIN DERIVATIVES

Koichi Kojima, and Shinsuke Kobayashi, both of [illegible], Japan, assignors to Sankyo Company Limited, Tokyo, Japan

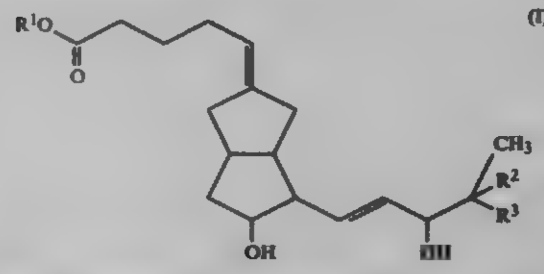
Filed Mar. 18, 1986, Ser. No. [illegible]

Claims priority, application Japan, Mar. 19, 1985, 60-[illegible]

Int. Cl.⁴ C07C *62/32;* **A61K** *31/21*

U.S. Cl. 514—510 **29 Claims**

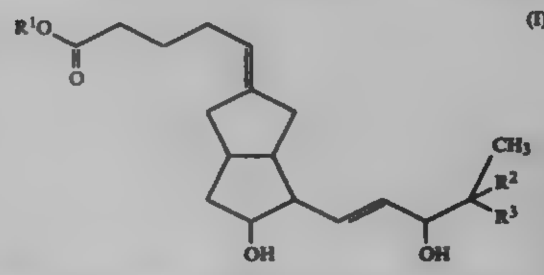
1. A carbacyclin derivative of the formula:



(I)

wherein R^1 is hydrogen or C_1–C_{10} alkyl; R^2 is hydrogen or methyl; and R^3 is 3-butenyl or 4-pentenyl, or a pharmaceutically acceptable salt thereof.

12. A method for the treatment of ulcers in a human suffering from ulcers, comprising administering to said human an effective amount of a carbacyclin derivative of the formula (I):



(I)

wherein R^1 is hydrogen or C_1–C_{10} alkyl; R^2 is hydrogen or methyl; and R^3 is 3-butenyl or 4-pentenyl, or a pharmaceutically acceptable salt thereof.

4,757,088

ANTIVIRAL PHARMACEUTICAL PREPARATIONS AND METHODS FOR THEIR USE

Harold G. Haines, and Caroline B. Dickson, both of Miami, Fla., assignors to Dean P. Brigham, Miami Lakes, Fla.

Division of Ser. No. [illegible], Mar. 8, 1984, Pat. No. 4,628,063.

This application Oct. 22, 1986, Ser. No. [illegible]

The portion of the term of this patent subsequent to Dec. 9, 2003, has been disclaimed.

Int. Cl.⁴ A61K *31/195, 31/16*

U.S. Cl. 514—[illegible] **10 Claims**

1. A method of treating herpes group virus infections in a mammal which comprises administering to said mammal an effective antiviral amount of a mixture comprising:

(a) lidocaine or a pharmaceutically acceptable salt thereof in a concentration of 0.1 to 10% w/v, and

(b) pantothenic acid or a pharmaceutically acceptable salt thereof in a concentration of 5 to 50 mg/ml.

4,757,089

INCREASING AQUEOUS HUMOR OUTFLOW

David L. Epstein, Wayland, Mass., assignor to Massachusetts Eye and Ear Infirmary, Boston, Mass.

Continuation of Ser. No. 743,[illegible], Jun. 14, 1985, abandoned.

This application Dec. 30, 1986, Ser. No. [illegible]

Int. Cl.⁴ A61K *31/19*

U.S. Cl. 514—571 **3 Claims**

1. A method of increasing aqueous humor outflow in the eye of a human patient to treat glaucoma in said patient, said method comprising topically administering to said eye an outflow increasing amount of ethacrynic acid, or an analog of ethacrynic acid which

contains a chemical group capable of reacting with sulfhydryl groups in the trabecular meshwork of said eye,

has a margin of safety of at least 2.0 and

has an octanol: water partition coefficient of at least 0.005.

4,757,090

DIRECT TABLETING ACETAMINOPHEN COMPOSITIONS

Anil M. Salpekar, Creve Coeur, and Larry E. Denton, Fenton, both of Mo., assignors to Mallinckrodt, Inc., St. Louis, Mo.

Continuation of Ser. No. 884,911, Jul. 14, 1986, Pat. No. 4,661,521, which is a continuation of Ser. No. [illegible], Apr. [illegible], 1984, abandoned. This application Feb. 13, 1987, Ser. No. 14,[illegible]

Int. Cl.⁴ A61K *9/14*

U.S. Cl. 514—613 **7 Claims**

1. A particulate N-acetyl-p-aminophenol composition useful in the preparation of tablets having high hardness, short disintegration time and short dissolution time, the composition being devoid of a lubricant and comprising as components thereof:

(a) from about 84 to 94 percent, based on the dry weight of the composition, of N-acetyl-p-aminophenol,

(b) from about 5 to about 15 percent, based on the dry weight of the composition, of a pharmaceutically acceptable pregelatinized starch, and

(c) water,

said composition being prepared in a fluid bed granulator-dryer by the process which comprises spraying an aqueous slurry of a portion of the pregelatinized starch onto a fluidized composition comprising N-acetyl-p-aminophenol and the remainder of the pregelatinized starch; and drying the resulting granules to a moisture level of from about 1.0 to about 2.5 percent.

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4,757,091
SKINLESS POROUS PARTICLE PVC RESIN AND PROCESS FOR PRODUCING SAME

Roman B. Hawrylko, North Olmsted, Ohio, assignor to The B.F. Goodrich Company, Akron, Ohio

Division of Ser. No. 038,099, Apr. 14, 1987, Pat. No. 4,711,908. This application Oct. 6, 1987, Ser. No. 107,426

Int. Cl.⁴ C08J *9/28*

U.S. Cl. 521—56 4 Claims

1. An agitated aqueous suspension polymerization process for producing porous, low-skin, agglomerated polyvinyl chloride resin particles comprising polymerizing vinyl monomer in the presence of a dispersant system consisting essentially of (a) from about 0.01 to about 0.03 part by weight per 100 parts by weight monomer of an unneutralized ion sensitive primary dispersant capable of thickening water, and (b) from about 0.1 to about 0.4 part by weight per 100 parts by weight monomer of a secondary dispersant, said resin particles having a mercury porosity of from about 0.1 cc/g to about 0.7 cc/g, and a particle size of from about 70 microns to about 1000 microns, and a friability of less than about 2, and a powder mix time of less than about 400 seconds, and a shape factor less than about 0.85 and wherein greater than about 20% and less than 50% of the area of the surface of said particle is PVC as measured by ESCA

4,757,092
SKINLESS POROUS PARTICLE PVC RESIN AND PROCESS FOR PRODUCING SAME

Roman B. Hawrylko, North Olmsted, Ohio, assignor to The B.F. Goodrich Company, Akron, Ohio

Division of Ser. No. 38,099, Apr. 14, 1987, Pat. No. 4,711,908. This application Oct. 6, 1987, Ser. No. 107,425

Int. Cl.⁴ C08V *9/28*

U.S. Cl. 521—56 7 Claims

1. A porous polyvinyl chloride resin in particulate form characterized by greater than about 90% by weight of said resin particles have an agglomerated non-spherical shape having a shape factor less than about 0.85, and wherein said particles are absent a substantially continuous pericellular membrane and wherein said resin has a mercury porosity of from about 0.1 cc/g to about 0.7 cc/g, and a particle size of from about 70 microns to about 1000 microns, and a friability of less than about 2, and a powder mix time of less than about 400 seconds, and wherein greater than about 20% of the area of the surface of said particle is PVC as measured by ESCA.

4,757,093
FLAME RETARDANT MELAMINE CONTAINING POLYURETHANE FOAM

Michael A. Ricciardi, Statesville, N.C.; Fred N. Teumac, Spartanburg, S.C.; Gregory W. Howard, and Ronald L. Murph, both of Charlotte, N.C., assignors to Reeves Brothers, Inc., Spartanburg, S.C.

Filed May 21, 1987, Ser. No. 52,344

Int. Cl.⁴ C08G *18/14*

U.S. Cl. 521—107 23 Claims

1. A method for maintaining the flame retardant properties of a flexible flame retardant polyether polyurethane foam prepared from a polyurethane foam-forming composition comprising a conventional, unmodified polyether polyol, an organic isocyanate compound, water, and a liquid phosphorous ester flame retardant additive which would normally be used in an amount of between 4 and 10 parts by weight based on 100 parts by weight of the polyether polyol, which method comprises:

replacing a minor portion of the amount of the liquid phosphorous ester flame retardant additive with an amount of melamine which is between about 15 to 300 percent of the minor portion of the additive to be replaced, said replacement amount of melamine being 10 parts by weight or less based on 100 parts by weight of the polyether polyol; and

thereafter forming the foam from the melamine containing foam-forming composition to obtain a flexible foam having substantially the same flame retardance as one wherein a portion of the ester is not replaced with melamine.

4,757,094
MELAMINE CURED POLYURETHANE FOAM WITH IMPROVED PROPERTIES

Fred N. Teumac, Spartanburg, S.C.; Michael A. Ricciardi, Statesville, N.C.; Ronald L. Murph, Charlotte, N.C., and Gregory W. Howard, Charlotte, N.C., assignors to Reeves Brothers, Inc., Spartanburg, S.C.

Filed May 21, 1987, Ser. No. 52,346

Int. Cl.⁴ C08G *18/14*

U.S. Cl. 521—118 34 Claims

1. A flexible, non-hydrophilic, polyether derived polyurethane foam forming composition comprising a polyether polyol, an organic isocyanate compound, water in an amount effective to act as a blowing agent, and a curing agent of an organic compound having at least one amine or hydroxyl moiety and a dissociation constant of between about 1.8×10^{-5} and 2.5×10^{-12} and which is substantially non-reactive with the foam forming components but which acts as a catalyst to the reaction of remaining isocyanate groups with moisture in the foam after formation thereof, said curing agent added in an amount effective to cause the reaction of a sufficient number of said remaining isocyanate groups with said moisture to improve the compression set properties of the resulting flexible foam but less than 5 parts by weight based on 100 parts by weight of the polyether polyol.

4,757,095
UTILIZATION OF LACTONES AND LACTAMS IN THE PREPARATION OF POLYURETHANE-POLYUREA PRODUCTS

Robert J. Gaina, Southgate, and Thirumurti Narayan, Grosse Ile, both of Mich., assignors to BASF Corporation, Parsippany, N.J.

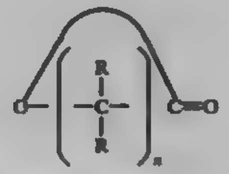
Continuation-in-part of Ser. No. 890,084, Jul. 24, 1986, abandoned. This application Jun. 9, 1987, Ser. No. 59,919

Int. Cl.⁴ C08G *18/14*

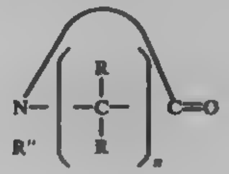
U.S. Cl. 521—128 18 Claims

1. A polyurethane-polyurea composition comprising the reaction product of

(a) A urethane-modified quasi-prepolymer comprising the reaction product of a mixture of diphenylmethane diisocyanate and uretonimine modified diphenylmethane diisocyanate said mixture having from about 10 weight percent to about 20 weight percent free NCO, a polyol selected from the group consisting of a polyester polyol and a polyoxyalkylene polyether polyol, with a compound selected from the group consisting of a lactone having the formula:



and a lactam having the formula:



(b) an alkane diol or diamine chain extender and

(c) catalyst, blowing agent, water, and surfactant wherein R, R' and R" are H, alkyl, aryl alkylaryl, heterocyclyl and cycloalkyl having 1 to 6 carbon atoms and n is an integer from 2 to 6.

4,757,096
POLYURETHANE FROTH FOAMS

Paul R. Berthevas, Prevessin, and Alain F. Fauget, Julien-en-Genevois, both of France, assignors to BP Chemicals Limited, London, England

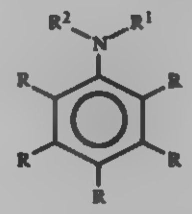
Filed Nov. 12, 1987, Ser. No. 119,740

Claims priority, application United Kingdom, Nov. 19, 1986, 8627659; Japan, Aug. 6, 1987, [illegible]

Int. Cl.⁴ C08G [illegible]

U.S. Cl. 521—163 10 Claims

1. A process for the manufacture of a polyurethane froth foam which process comprises contacting a polyurethane forming formulation with an inert gas under conditions which produce a froth of the polyurethane forming formulation characterised in that the polyurethane forming formulation comprises a polyfunctional isocyanate, a polyfunctional alcohol and a chain extender which is either (1) an aromatic amine having the formula



wherein the R groups are independently selected from hydrogen or alkyl groups and the R^1 and R^2 groups are independently selected from hydrogen or hydroxyalkyl groups, or (2) an alkoxylated bisphenol A.

4,757,097
PROCESS FOR THE PRODUCTION OF OLIGOESTERS CONTAINING HYDROXY GROUPS AND THEIR USE

Manfred Dietrich, Leverkusen; Manfred Kapps, Bergisch Gladbach; Klaus König, Odenthal, and Roland Nast, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Filed Jan. 23, 1987, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1986, [illegible]

Int. Cl.⁴ C08G *18/42*

U.S. Cl. 521—167 14 Claims

1. A process for the production of a hydroxyl group containing oligoesters having an OH number of from 200 to 600 mg KOH/g in which no halogen is present comprising

(a) reacting

(1) a non-halogenated cyclic dicarboxylic acid anhydride with

(2) polyfunctional alcohols and/or [illegible]

in a molar ratio of 1:0.5 to 1:1.5 at a temperature of from 50° to 150° C. to form the corresponding dicarboxlic acid semiester and/or semiamide and

(b) alkoxylating the carboxyl groups present in the reaction product of (a) with ethylene oxide and/or propylene oxide at a temperature of from 80° to 150° C. and in quantities such that the equivalent ratio of acid groups to alkylene oxide groups is from 1:0.08 to 1:1.7 in the presence of a reaction product of alkoxides with at least 1 C-atom with ammonia, piperidine, piperazine and/or C_2–C_6 aliphatic, polyamines, preferably diamines in which all of the NH-functional groups have been alkoxylated.

4,757,098
STABILIZED SOLUTIONS OF RADIATION-CROSSLINKABLE POLYMER PRECURSORS OF HIGHLY HEAT-RESISTANT POLYMERS

Hans J. Merrem, Seeheim; Rudolf Klug, Aschaffenburg, and Horst Binder, Lampertheim, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Apr. 17, [illegible], Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Apr. 17, 1986, [illegible]

Int. Cl.⁴ G03C *1/71*

U.S. Cl. 522—75 17 Claims

1. In a composition comprising a radiation-crosslinkable polyamide ester polymer precursor of a highly heat-resistant polyimide polymer, the improvement wherein the composition further comprises an amount of a chelating agent effective to stabilize the precursor against non-photoinduced crosslinking, said chelating agent being ethylenediamine, nitrilotriacetic acid, ethylenediamine-tetraacetic acid, 1,2-cyclohexylenediaminetetraacetic acid, diethylenetriaminepentaacetic acid, bis-(2-aminoethyl)-glycol-ether-N,N,N',N'-tetraacetic acid or 8-hydroxyquinoline.

4,757,099
DEODORIZING RESIN COMPOSITIONS AND FORMED DEODORIZING ARTICLES

Akira Hoshino, Koshigaya; Mikio Saji, Kamifukuoka, and Isamu Yamaguchi, Soka, all of Japan, assignors to Dainichiseika Color & Chemicals Mfg. Co., Ltd., Tokyo, Japan

Filed Nov. 16, 1986, Ser. No. [illegible]

Claims priority, application Japan, Apr. 7, 1986, [illegible]; Apr. 7, 1986, [illegible]; Apr. 7, 1986, [illegible]; May 13, 1986, 61-107543

Int. Cl.⁴ C11B *9/00*; A61K *7/00*; C08K *9/12, 3/22*

U.S. Cl. 523—102 8 Claims

1. A resin composition, comprising:

99.9–50 parts by weight of a thermoplastic resin and 0.1–50 parts by weight of a combination of fumaric acid and a

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zinc compound, which combination functions as a deodorizing ingredient.

4,757,100

CABLE-FILLING COMPOUNDS

Juergen Wichelhaus, Wuppertal; Johann Andres, Duesseldorf, and Werner Gruber, Korschenbroich, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany

Filed Jun. 26, 1986, Ser. No. 878,920

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1985, [illegible]

Int. Cl.⁴ H01B *7/28, 3/18;* C09K *3/10;* G02B *6/44*

U.S. Cl. 523—173 15 Claims

1. A filling compound having plastic flow behavior for electrical components and light-wave conductors comprising:

(a) from about 65 to about 90% by weight of a non-polar, water-immiscible hydrocarbon organic liquid having a pour point below 0° C. and a kinematic viscosity of from about 2 to about 600 cSt measured at about 20° C.; (b) from about 2 to about 25% by weight of an organic polymer selected from the group consisting of a copolymer of ethylene and propylene, a copolymer of ethylene and α-butylene, a copolymer of propylene and α-butylene, and a terpolymer of propylene, α-butylene and ethylene; and (c) from about 2 to about 10% by weight of pyrogenic silica; said filling compound having a dielectric constant at 20° C. of less than about 2.0, a specific breakdown resistance of more than about 10^{10} Ohm.cm, a specific gravity of less than about 1.0 g/cm³, a cable filling capacity at room temperature, is free from leakage at a temperature of up to about 90° C., and is free from cracks after 10 freeze-thaw cycles.

4,757,101

PROCESS FOR THE PRODUCTION OF A FREE FLOWING, POWDERED ELASTOMER FILLED WITH SILICIC ACID

Walter H. Kleinert, Velen; Michael F. Mueller, Muenster; Klaus-Rudolf Meyer, Hattingen-Blankenstein; Guenter Hahn, and Juergen Simon, both of Marl, all of Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Mar. 2, 1987, Ser. No. 20,928

Claims priority, application Fed. Rep. of Germany, Mar. 1, 1986, [illegible]

Int. Cl.⁴ C08K *3/36;* C08L *21/00;* C08J *3/16;* C08C *1/14*

U.S. Cl. 523—220 20 Claims

1. In a process for the production of a free flowing, powdered elastomer filled with silicic acid by precipitating an elastomer latex in the presence of silicic acid and an auxiliary precipitant, using an acid, the improvement wherein the silicic acid employed exhibits the following properties:

(a) SiO_2 content about 82–91.5% by weight;
(b) metallic oxides content about 0.5–3% by weight;
(c) loss on ignition, measured at 1000° C., about 8–15% by weight;
(d) moisture content, measured at 105° C., about 2–10% by weight;
(e) surface area of the primary particles about 40–250 m²/g;
(f) dibutyl phthalate absorption, based on measured weight, about [illegible];
(g) linear average of numerical distribution of secondary particles about 10–2,000 nm;
(h) linear average of volume distribution of secondary particles about 3–30 μm;
(i) proportion of secondary particles with a diameter of less than 1 μm about 0.01–5% by weight

wherein the percentages of parameters (a) to (c), add up to 100% by weight.

4,757,102

COMPOSITIONS STABILIZED WITH AMINOXY ALKYLAMINE DERIVATIVES

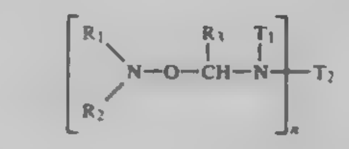
Ramanathan Ravichandran; Stephen D. Pastor, both of Yonkers, and Thomas E. Snead, Dobbs Ferry, all of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 12, 1986, Ser. No. 861,960

Int. Cl.⁴ C08K *5/34*

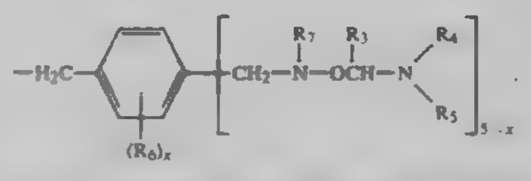
U.S. Cl. 524—95 21 Claims

1. A composition of matter comprising a plastic, polymer or resin subject to oxidative, thermal and actinic degradation stabilized with an effective stabilizing amount of a compound of the formula



wherein

R_1 and R_2 are independently alkyl of 1 to 36 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, aralkyl of 7 to 9 carbon atoms or said aralkyl substituted by alkyl of 1 to 36 carbon atoms, or R_1 and R_2 together with the nitrogen can form a piperidyl, pyrryl, morpholino or pyrrolidino ring, or R_1 and R_2 are independently a group of the formula

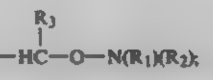


R_3, R_4, R_5, R_6 and R_7 are independently hydrogen, alkyl of 1 to 36 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, allyl, aryl, aralkyl of 7 to 9 carbon atoms, said aralkyl substituted by alkyl of 1 to 36 carbon atoms, bornyl, norbornyl or isobornyl, or R_4 and R_5 together with the nitrogen can form a piperidyl, pyrryl, morpholino or pyrrolidino ring;

n is 1–4;

x is 0–5;

T_1 is R_3 or



$$-\overset{R_3}{\overset{|}{HC}}-O-N(R_1)(R_2);$$

when n=1, T_2 is R_3 or pyridinyl-substituted (C_1–C_4) alkyl, or T_1 and T_2 together with the nitrogen can form a pyrrolidino, piperidyl or morpholino ring;

when n=2, T_2 is alkylene of 2 to 12 carbon atoms, cycloalkylene of 6 to 10 carbon atoms, arylene of 6 to 10 carbon atoms or alkylenearylenealkylene of 8 to 10 carbon atoms or T_1 and T_2 together with the two nitrogens can form a piperazine or pyrazolidine ring;

when n=3, T_2 is alkanetriyl of 3 to 6 carbon atoms or T_1 and T_2 together with the three nitrogens can form a fully saturated triazine or triazole ring; and

when n=4, T_2 is alkanetetrayl of 4 to 6 carbon atoms.

4,757,103

SELF-EXTINGUISHING POLYCARBONATE COMPOSITION

Giovanni Dozzi, Milan; Salvatore Cucinella, S. Donato Milanese, and Giorgio Della Fortuna, Milan, all of Italy, assignors to Anic, S.p.A., Palermo, Italy

Continuation of Ser. No. [illegible], Jan. 3, 1983, abandoned. This application Oct. 23, 1986, Ser. No. 921,847

Claims priority, application Italy, Jan. 4, 1982, 21699 A/82; Apr. 1, 1983, 20426 A/83

Int. Cl.⁴ C08K *5/41, 5/34, 5/09*

U.S. Cl. 524—99 10 Claims

1. A self-extinguishing halogen-free polycarbonate composition consisting of a polycarbonate-resin base and as a flame-retardant

an organic metal salt selected from the group consisting of the sodium salt of pyridine-3-carboxylic acid;
the magnesium salt of pyridine-3-carboxylic acid;
the potassium salt of biphenyl-2,2'bicarboxylic acid;
the potassium salt of pyridine-2,6-bicarboxylic acid;
the calcium salt of pyridine-2,6-bicarboxylic acid;
the ammonium salt of pyridine-2,6-bicarboxylic acid;
the potassium salt of biphenylsulphone-4,4'bicarboxylic acid;
the sodium salt of biphenylsulphone-4,4'-bicarboxylic acid;
the lithium salt of biphenylsulphone-4,4'bicarboxylic acid; and
the magnesium salt of biphenylsulphone-4,4'-bicarboxylic acid.

4,757,104

GAMMA RADIATION RESISTANT CARBONATE POLYMER COMPOSITIONS CONTAINING LINOLENIC COMPOUNDS

Vaughn M. Nace, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 848,066, Apr. 4, 1986, abandoned. This application Feb. 6, 1987, Ser. No. 11,562

Int. Cl.⁴ C08K *5/10, 5/34*

U.S. Cl. 524—211 7 Claims

1. A carbonate polymer composition with improved resistance to gamma radiation which comprises a carbonate polymer and a gamma radiation resistance improving amount of one or more linolenic compounds having the formula

$$CH_3\text{-}(CH_2-CH=CH)_3(CH_2)_7C(O)-X$$

where X is [—OH,] —NR_1R_2 or —OR and R is an alkyl group of 1 to 18 carbons, R_1 and R_2 are independently hydrogen or alkyl groups of 1 to 4 carbons.

4,757,105

PROCESS FOR THE PRODUCTION OF FINELY DIVIDED POLYISOCYANATES CONTAINING UREA GROUPS

Richard Kopp, Cologne; Gerhard Grögler; Heinrich Hess, both of Leverkusen, and Klaus König, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 3, 1987, Ser. No. 116,108

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1986, [illegible]

Int. Cl.⁴ C08L *75/00*

U.S. Cl. 524—714 22 Claims

1. A process for the preparation of finely divided, solid polyisocyanates containing urea groups which comprises reacting water with an organic polyisocyanate which is free from urea groups in an aqueous emulsion and optionally in the presence of emulsifiers, catalysts, and/or bases, which further comprises conducting the reaction in the presence of an emulsion- and dispersion-stabilizing compound corresponding to the formula (I)

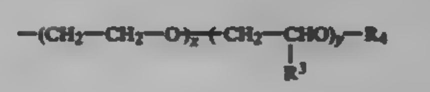
$$(X)_a-R-(Y)_b \qquad (I)$$

wherein

X denotes an NH_2 group, a NHR^1 group in which R^1 represents a C_1- to C_{10}-alkyl group which optionally contains a tert. amino groups, an OH-group or an SH-group,

R denotes an aromatic group with 6 to 20 carbon atoms, a heteroaromatic group with 5 to 20 carbon atoms and at least one oxygen and/or nitrogen atom in the ring system, an aliphatic group with 2 to 20 carbon atoms or a cycloaliphatic group with 4 to 20 carbon atoms, said groups being optionally substituted with halogen atoms,

Y denotes COOH, or COO^-M^+ in which M stands for an alkali metal, an alkaline earth metal, NH_4 or the group $NH-(R^2)_3$ in which R^2 represents hydroxyalkyl, alkoxyalkyl or alkyl with 1 to 10 carbon atoms; or Y denotes SO_3H or $SO_3^-M^+$ in which M is as defined above as indicated; or Y denotes $-N(R^2)_2$ or $-N^{\oplus}H(R^2)_2Z^{\ominus}$ in which Z is a carboxylate group or a sulphonate group and R^2 is as defined above; or Y denotes a group corresponding to the formula (II)



$$-(CH_2-CH_2-O)_x-(CH_2-\underset{R^3}{\underset{|}{C}}HO)_y-R_4 \qquad (II)$$

wherein

R^3 denotes a C_1–C_6-alkyl group,

R^4 denotes hydrogen or a C_1–C_6-alkyl group and

x and y, which may be identical or different, each represents an integer with a value or 0 to 50 (sum of x+y is at least 1) and

a and b, which may be identical or different each represent an integer with a value of 1 to 3, provided that

(i) when Y denotes OH or SH, then R is neither an aromatic nor a heteroaromatic group, and
(ii) when Y is a group of the general formula (II), then X may only denote NH_2 or NHR^2 and R must stand for a chemical bond,

or the reaction is carried out in the presence of an alkali metal hydrogen sulphite.

4,757,106

AQUEOUS ORGANOPOLYSILOXANE EMULSIONS

Hans Mayer, Burghausen; Hermann Wilhelm, [illegible], and Bernward Deubzer, Burghausen, all of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Feb. 27, 1987, Ser. No. 19,[illegible]

Claims priority, application Fed. Rep. of Germany, Apr. 21, 1986, [illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 524—262 4 Claims

1. An aqueous emulsion comprising (A) an organopolysiloxane containing aliphatic radicals that are bonded to silicon via oxygen, and has a molecular weight of at least 620 g per mol, represented by the formula

$$R_x^1Si(OR^2)_yO_{\frac{4-x-y}{2}},$$

where R^1 represents SiC-bonded monovalent organic radicals, R^2 represents monovalent aliphatic radicals, and x is 0, 1, 2 or 3, with an average of from 0.75 to 1.5, and y is 0, 1, 2 or 3, with an average of from about 0.2 to 2.0; (B) an emulsifier containing a salt of a water-soluble organic or inorganic acid, which is obtained by reacting a polysiloxane with a water-soluble organic or inorganic acid selected from the group consisting of hydrochloric acid, sulfuric acid, acetic acid, propionic acid and [illegible], in which the polysiloxane contains in addition to other siloxane units, siloxane units having monovalent SiC-bonded radicals with basic nitrogen of the formula

$$R_2^5NR^6-$$

where R^5 is selected from the group consisting of hydrogen,

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alkyl and aminoalkyl radicals and R^6 is a divalent hydrocarbon radical, in an amount of at least 0.5 percent by weight of basic nitrogen, based on the weight of the polysiloxane, and up to 5 percent by weight of a water-soluble solvent or octanols, based on the weight of the emulsifier (B).

4,757,107

FLAME RETARDANT POLYPHENYLENE ETHER BLENDS

Gary W. Yeager; Dwain M. White; James E. Pickett, all of Schenectady; Arnold Factor, Scotia, and William R. Haaf, Voorheesville, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 3, 1987, Ser. No. 92,784

Int. Cl.⁴ C08K *3/16*

U.S. Cl. 524—435 8 Claims

1. Flame retardant polyphenylene ether styrene resin blends comprising,

(a) a polyphenylene ether,

(b) a polystyrene resin, and

(c) from 0.05 to 5 parts of an iron halide per hundred parts weight of the blend.

4,757,108

WATER SOLUBLE PHENOLIC RESOLE-UREA COMPOSITION

Wayne R. Walisser, Ladner, Canada, assignor to Borden, Inc., Columbus, Ohio

Filed Jun. 18, 1986, Ser. No. 875,536

Int. Cl.⁴ C08G *8/28*

U.S. Cl. 524—596 41 Claims

1. A process for making a resinous binder that is substantially cold storage stable, characterized by showing no signs of formation of hard insoluble phases for periods in excess of about 24 hours at temperatures of about 0° C. to 15° C., said process comprising:

adding a source of urea to an aqueous phenolic resole solution that contains free formaldehyde, to obtain a mixture, said aqueous phenolic resole solution having a temperature in the range of about 10° C. to about 50° C., wherein the molar ratio of free formaldehyde to available urea within said aqueous phenolic resole solution is in the range of from 0.3:1 to 3.0:1,

acidifying said mixture to a pH of 3.0 to 5.8 for from about 15 to 40 minutes while maintaining the temperature of the mixture within the range of about 10° to 50° C., and then neutralizing said mixture.

4,757,109

PROCESS FOR THE PREPARATION OF MALEIMIDE COPOLYMERS AND THERMOPLASTIC RESIN COMPOSITION USING THE SAME

Kazuo Kishida, Otake; Yutaka Toyooka, and Atsushi Kimura, both of Otake, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

PCT No. PCT/JP86/00252, § 371 Date Oct. 14, 1986, § 102(e) Date Oct. 14, 1986, PCT Pub. No. WO86/06732, PCT Pub. Date Nov. 20, 1986

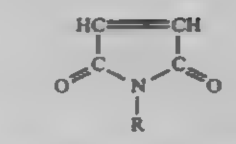
PCT Filed May 16, 1986, Ser. No. 928,279

Claims priority, application Japan, May 16, 1985, [illegible]; May 17, 1985, [illegible]

Int. Cl.⁴ C08L *39/04, 51/00*

U.S. Cl. 524—[illegible] 8 Claims

1. A process for the preparation of maleimide copolymers by emulsion polymerization of 50 to 80% by weight of an aromatic vinyl monomer, 10 to 30% by weight of a vinyl cyanide monomer, and 5 to 40% by weight of a maleimide monomer of the formula



(A)

where R is a hydrogen atom, an alkyl group of 1 to 4 carbon atoms, a cyclohexyl group, an aryl group or a substituted aryl group, provided that the total amount of said monomers is 100% by weight, said process comprising charging not less than 30% by weight of the total amount of said aromatic vinyl monomer into the polymerization system before initiation of said polymerization; adding a mixture composed of 70 to 95% by weight of the total amount of said vinyl cyanide monomer, the total amount of said maleimide monomer of the formula (A), and the remainder, if any, of said aromatic vinyl monomer into the polymerization system after initiation of the polymerization; and then adding the remaining 30 to 5% by weight of said vinyl cyanide monomer into the polymerization system; maintaining the pH of the aqueous phase of the polymerization system in the range of 3 to 9 at the initiation of said polymerization; and using a redox catalyst containing an oil-soluble organic peroxide.

4,757,110

THERMOPLASTIC RUBBER COMPOSITIONS

Kyosaku Sato, Sarnia, Canada, assignor to Polysar Limited, Sarnia, Canada

Filed Mar. 5, 1987, Ser. No. 22,350

Int. Cl.⁴ C08L *33/02, 51/04*

U.S. Cl. 525—78 8 Claims

1. A rubbery thermoplastic blend which comprises (i) from about 15 to about 40 parts by weight of a thermoplastic polymer selected from (a) an acrylonitrile-butadiene-styrene polymer containing from about 5 to about 35 weight percent of acrylonitrile, from about 5 to about 25 weight percent of butadiene and about 45 to about 90 weight percent of styrene and (b) a styrene-acrylonitrile polymer containing from about 60 to about 95 weight percent of styrene and from about 5 to about 40 weight percent of acrylonitrile, (ii) from about 60 to about 85 parts by weight of a rubbery carboxylated butadiene-acrylonitrile polymer having a Mooney viscosity (ML 1+4 at 100° C.) of from about 35 to about 80 and containing from about 20 to about 40 weight percent of acrylonitrile, from about 4 to about 10 weight percent of one or more α,β-unsaturated carboxylic acid selected from acrylic, methacrylic, fumaric, maleic and itaconic acid, the balance to 100 weight percent being butadiene, the total of (i) and (ii) being 100 parts by weight, and (iii) from about 2 to about 8 parts by weight, per 100 parts by weight of (ii), of a metal oxide or hydroxide wherein said metal is selected from magnesium, calcium, zinc and barium.

4,757,111

WEATHER-RESISTANT RESIN, AND ITS PRODUCTION

Mikio Hirai; Yoshiaki Nishikubo; Tomio Yoshida, all of Niihama, and Tamao Ooki, Ehime, all of Japan, assignors to Sumitomo Naugatuck Co., Ltd., Osaka, Japan

Filed Dec. 26, 1985, Ser. No. 813,331

Int. Cl.⁴ C08F [illegible]

U.S. Cl. 525—316 4 Claims

1. A method for selecting and obtaining a graft polymer having well-balanced excellent physical properties from graft polymers comprising an ethylene-propylene-nonconjugated diene elastomer grafted with a combination of a vinyl aromatic monomer and a vinyl cyanide, which comprises measuring the contents in the graft polymers of the material soluble in tetrahydrofuran and n-hexane in a volume ratio of 1:4 and of the material insoluble in tetrahydrofuran and selecting a graft polymer comprising a tetrahydrofuran/n-hexane mixture-soluble material content of not more than 40% by weight and a tetrahydrofuran-insoluble material content of not more than 60% by weight.

4,757,112

SINGLE STEP BULK PROCESS FOR HIGH IMPACT POLYAMIDE MASTERBATCHES, PRODUCTS THEREOF AND BLENDS WITH POLYAMIDES

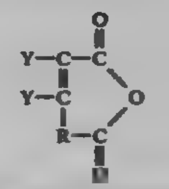
Shrikant V. Phadke, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corp., Baton Rouge, La.

Continuation of Ser. No. 800,332, Nov. 21, 1985, abandoned. This application Aug. 17, 1987, Ser. No. 86,202

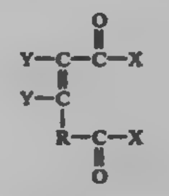
Int. Cl.⁴ C08L *77/00*

U.S. Cl. 525—66 19 Claims

1. The method of producing a polyamide based composition having improved toughness and impact strength comprising first forming a masterbatch by thermally reacting 10–80 percent by weight of the total amount of the polyamide resin in the polyamide based composition with an ethylene-mono olefin copolymer rubber and a reaction material in the form of an anhydride having the general formula



or corresponding unsaturated dicarboxylic acid or derivative thereof having the general formula



in which R is an alkylene group having from 0–4 carbon atoms, Y is selected from the group consisting of hydrogen, halogen or an organic group having from 1–12 carbon atoms and X is a hydroxyl or ester forming group but in which at least one X is hydroxyl, and then blending the masterbatch with the remainder of the polyamide increment.

4,757,113

CATIONIC WATER-DILUTABLE BINDERS AND PROCESS FOR THEIR PRODUCTION

Willibald Paar, Graz, Austria, assignor to Vianova Kunstharz, A. G., Werndorf, Austria

Filed May 27, 1987, Ser. No. [illegible]

Claims priority, application Austria, May 27, 1986, [illegible]

Int. Cl.⁴ C08G [illegible]

U.S. Cl. 525—124 25 Claims

1. Process for producing cationic water-dilutable binders comprising blending a resin component carrying functional groups reactive with an isocyanate group with a blocked polyisocyanate compound reactive in the presence of heat with the functional groups of said resin component to provide crosslinking, said blocked polyisocyanate compound being partially or totally blocked with NH-functional enamines obtained by reacting a C-H-active dicarbonyl compound with ammonia or a primary amine, said binder containing groups to render said binder water-dilutable.

4,757,114

PROCESS FOR MAKING A BLOCK COPOLYMER HYDROCARBON RESIN TACKIFIER

Chiaki Tochinai, Tokyo; Tadanao Kohara, Yokohama; Sadayoshi Bodo, Kanagawa; Hiroaki Masuda, Yokohama, and Takayoshi Yoshida, Kanagawa, all of Japan, assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 19, 1985, Ser. No. [illegible]

Claims priority, application United Kingdom, Nov. 21, 1984, 8429356

Int. Cl.⁴ C08F 297/00; C08L 53/00

U.S. Cl. 525—289 8 Claims

1. A process for preparing a block copolymer tackifier resin from a reaction mixture wherein a feed A or feed B is polymerised completely in the presence of a Friedel-Crafts catalyst and thereafter either respectively feed B or feed A is added to the reaction mixture and polymerisation continued and the reactor effluent is stripped to obtain the resin, said feed A being a C_8 or C_9 aromatic unsaturated hydrocarbon-containing feed, and feed B being a feed of about C_5 aliphatic unsaturated hydrocarbon-containing feed, provided that feed A may contain up to 18 wt.% of C_4 or C_5 unsaturated aliphatic hydrocarbons based on the total weight of monomers in feed A.

4,757,115

THERMOSET POLYMER COMPOSITIONS

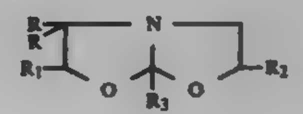
Anil B. Goel, Worthington; Timothy A. Tufts, and Joseph G. Holehouse, both of Columbus, all of Ohio, assignors to Ashland Oil, Inc., Russell, Ky.

Continuation-in-part of Ser. No. 698,724, Feb. 6, 1985, abandoned. This application Nov. 17, 1986, Ser. No. 931,496

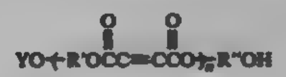
Int. Cl.⁴ [illegible]

U.S. Cl. 525—440 10 Claims

1. An interconnected polymer comprising the substantially insoluble and infusible cured polymerization reaction product of (1) a polyisocyanate, (2) a bicyclic amide acetal corresponding to the formula:

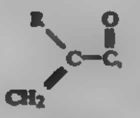


Wherein R is H or alkyl; R_1 and R_2 is H, alkyl, aryl or alkoxy; and R_3 is alkyl, alkaryl or aryl and (3) a hydroxy group bearing free radically polymerizable ethylenically unsaturated monomer, containing at least one vinyl group of the formula:



$$YO\!\left(R'O\overset{O}{\overset{\|}{C}}C{=}C\overset{O}{\overset{\|}{C}}O\right)_{n}R''OH$$

where Y is



R is hydrogen, an alkyl group or an aryl group, R' and R" are independently an alkylene group or an alkylene ether group having from 2 to 10% carbon atoms, and n is an integer from 1 to 10 and therein the isocyanate index of the resin-forming reaction mixture is between about 0.8 and 3 and wherein the relative weight ratio of (2) and (3) is from 1:99 to 50:50, respectively.

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4,757,116
ELASTOMERIC FLUID COMPOSITIONS, CROSSLINKING IN THE PRESENCE OF AMBIENT HUMIDITY, SUITABLE FOR USE IN SEALANTS

Alberto Greco, Dresano, and Gabriele Lugli, San Donato Milanese, both of Italy, assignors to Enichem Sintesi S.p.A., Palermo, Italy

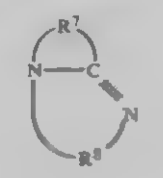
Filed May 22, 1987, Ser. No. 53,350

Claims priority, application Italy, May 29, 1986, 20607 A/86

Int. Cl.⁴ [illegible]

U.S. Cl. 525—452 9 Claims

1. A fluid composition crosslinkable under ambient conditions of temperature and humidity to provide solid elastomeric products, comprising:
   - (A) an elastomeric aliphatic polycarbonate, having functional phenylcarbamate or (substituted phenyl)-carbamate end groups, and having a number average molecular weight of from 500 to 3,000;
   - (B) an organic compound having at least two —N═C< groups selected from bisketimines, bisketiminoenamines [illegible]
   - (C) a tertiary amine of the formula



wherein R^7 and R^8 are alkylene radicals, containing from 3 to 5 carbon atoms, possibly substituted with alkyl or aryl groups, or either R^7 or R^8 is the $—(CH_2)_3—NH$-radical; wherein the (B) component is present in the amount which supplies a maximum of 2 total ketimino or enamino groups per arylcarbamate group in the (A) component, and the (C) component is present in an amount of at least 0.5 parts by weight per each 100 parts by weight of the (A) Component.

4,757,117
POWDER COATING COMPOSITIONS

Noel S. Moss, Duxford, England, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 765,429, Aug. 14, 1985, abandoned. This application Apr. 17, 1987, Ser. No. 40,692

Claims priority, application United Kingdom, Aug. 24, 1984, [illegible]

Int. Cl.⁴ C08L *63/02, 63/04*

U.S. Cl. 525—483 16 Claims

1. A powder coating compostion which is curable to form a laser-engravable printing surface comprising
   - (a) a difunctional epoxy resin prepared from a bisphenol,
   - (b) an epoxy resin having an epoxide functionality greater than 2 present in an amount of 5 to 100 parts by weight per 100 parts by weight of resin (a),
   - (c) a diaminodiphenylsulfone as hardener for the mixture of resins (a) and (b), and
   - (d) an imidazole as curing accelerator.

4,757,118
THERMOSETTABLE MODIFIED PHENOLIC POLYESTER IMIDE RESINS

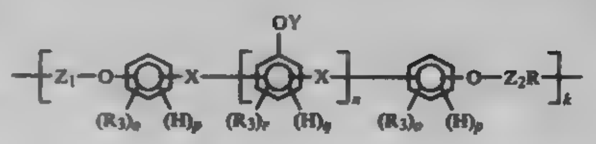
Sajal Das, Parsippany, and Dusan C. Prevorsek, Morristown, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Jan. 23, 1986, Ser. No. 821,657

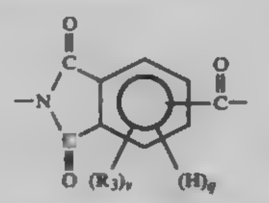
Int. Cl.⁴ C08G *8/28, 8/36*

U.S. Cl. 525—504 30 Claims

1. A modified phenolic resin of the formula:



$—Z_1—$ and $—Z_2—$ are the same or different and are divalent moieties of the formula:



- o and p are the same or different at each occurrence and are whole numbers from 0 to 4 with the proviso that the sum of o and p at each occurrence is equal to 4;
- q and r are the same or different and are whole numbers from 0 to 3 with the proviso that the sum of q and r at each occurrence is equal to 3;
- Y is hydrogen, or hydrogen and —CN;
- —X— and —R— are the same or different at each occurrence and are a divalent organic radicals;
- R_3 is the same or different at each occurrence and is a substituent other than hydrogen which is unreactive with amine functions;
- k is a positive whole number; and
- n is a positive whole number.

4,757,119
EPOXY RESIN COMPOSITIONS CONTAINING POLY-(HYDROCARBYLTHIO)AROMATIC DIAMINES

Paul L. Wiggins, and Gordon G. Knapp, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed May 4, 1987, Ser. No. 45,521

Int. Cl.⁴ C08G *59/50*

U.S. Cl. 525—504 20 Claims

1. A composition comprising an epoxy resin and a poly(hydrocarbylthio)aromatic diamine curing agent.

4,757,120
POLYIMIDE/AROMATIC SULFONE RESIN BLENDS AND PREPREGS COATED THEREWITH

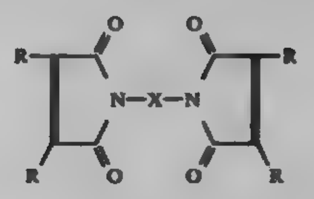
William W. Bristowe, and Hong C. Kim, both of Wilmington, Del., assignors to ICI Americas Inc., Wilmington, Del.

Filed Oct. 3, 1986, Ser. No. 914,772

Int. Cl.⁴ C08L *79/08, 81/06*

U.S. Cl. 525—534 4 Claims

1. A resin composition comprising an ethylenically unsaturated polyimide prepolymer which is the reaction product of an active methylene compound having the formula $R^1R^2CH_2$ wherein R^1 is a monovalent radical selected from the group consisting of —CN, $—NO_2$, $—CO—OR^3$, $—CONH_2$, $—CO_2H$, —CO—H, $—COC_6H_5$, $CO—R^3$, —CO—Cl, $—SO_2—C_6H_5$, wherein R^3 is an alkyl group having one to four carbon atoms and R^2 is a monovalent radical selected from the group consisting of R^1 and —H, $—CH_3$, $—C_6H_5$, —Cl, —F, or $—C_6H_4Z$ wherein Z is —H, $—CH_3$, a lower alkyl having 1–4 carbon atoms —Cl, —Br, or —F, with a bismaleimide compound of Formula I wherein X is a divalent organic radical and R is independently selected from the group consisting of —H, —F, —Cl, —Br, CF_3 and an alkyl having 1–4 carbon atoms, said prepolymer blended with 2–15 parts by weight of polyether sulfone resin which comprises a substantial amount of repeating units of an arylene bond, an ether bond and a sulfone bond wherein Formula I is:



4,757,121
SILICONE-BASED SOFTENING AGENT FOR SYNTHETIC FIBERS

Masaki Tanaka, and Hiroshi Ohashi, both of Annaka, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 15, 1987, Ser. No. 96,651

Claims priority, application Japan, Sep. 19, 1986, [illegible]

Int. Cl.⁴ C08G [illegible]

U.S. Cl. 528—27 3 Claims

1. A silicone-based softening agent for synthetic fibers which comprises:
- (A) 100 parts by weight of a combination of two organopolysiloxanes composed of
  - (A-1) from 5 to 95% by weight of a first amino-substituted organopolysiloxane having a viscosity in the range from 100 to 1,000,000 centistokes at 25 ° and having a substantially linear molecular structure represented by the general formula

    $XO—(SiR_2—O)_m(SiZR—O)_nX,$

    in which R is a monovalent hydrocarbon group having from 1 to 20 carbon atoms, Z is an amino-substituted monovalent hydrocarbon group of the formula

    $—R^1—(NHCH_2CH_2)_aNR^2_2,$

    R^1 being a divalent hydrocarbon group having 1 to 10 carbon atoms, R^2 being a hydrogen atom or a monovalent hydrocarbon group having 1 to 20 carbon atoms and the subscript a being zero or a positive integer not exceeding 4, X is a hydrogen atom or a monovalent hydrocarbon group having 1 to 10 carbon atoms, and m and n are each a positive integer, the number of the amino-substituted groups denoted by Z in a molecule being 1% or less of the total number of the groups denoted by R and Z, and
  - (A-2) from 95 to 5% by weight of a second amino-substituted organopolysiloxane which is a reaction product of
    - (A-2a) a liquid amino-substituted organopolysiloxane represented by the average unit formula

      $Z_bR_cSiO_{(4-b-c)/2},$

      in which Z and R each have the same meaning as defined above, b is a positive number not exceeding 1 and c is a positive number smaller than 2 with the proviso that b+c is in the range from 1.9 to 2.1, and
    - (A-2b) a liquid organic epoxy compound having at least one epoxy group in a molecule in such an amount that from 0.01 to 20 moles of the epoxy groups are provided per mole of the nitrogen atoms in the amino-substituted organopolysiloxane as the component (A-2a);
- (B) from 1 to 50 parts by weight of an epoxy-containing alkoxy silane compound; and
- (C) from 1 to 50 parts by weight of a monoepoxy compound represented by the general formula

  $G—R^3—OY,$

in which G is a group of epoxy residue, R^3 is a divalent hydrocarbon group and Y is a hydrogen atom or a group selected from the class consisting of acyl groups, acryl group, methacryl group and silyl groups represented by the general formula

$—(SiMe_2—O)_eSiMe_3,$

Me being a methyl group and e being zero or a positive integer not exceeding 5.

4,757,122
STABILIZED VARNISH WITHOUT SOLVENT FOR IMPREGNATING ELECTRIC WINDING INSULATION

Alain Anton, Chaponnay, France, assignor to Alsthom-Atlantique, S.A., Paris, France

Division of Ser. No. [illegible], Jul. 13, 1984, Pat. No. [illegible]. This application Aug. 14, 1985, Ser. No. [illegible]

Claims priority, application France, Jul. 13, 1983, [illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 528—48 3 Claims

1. Varnish without solvent based on isocyanate compounds and liquid epoxy resins, stabilized against viscosity increase during storage, characterized in that the varnish includes 7 to 25 isocyanate equivalents for an epoxy equivalent and contains from 0.02 to 1% in weight relative to the varnish total weight, of an inhibitor selected from the group consisting of a mineral acid, an organic acid, an organic anhydride, and an organic compound catching π electrons.

4,757,123
METHOD FOR THE PREPARATION OF RIGID CAST OR TRANSFER MOLDED THERMOSET POLYISOCYANURATE COMPOSITIONS

Usama E. Younes, Newtown Square, Pa., assignor to Arco Chemical Company, Newtown Square, Pa.

Filed Aug. 3, 1987, Ser. No. [illegible]

Int. Cl.⁴ C08G [illegible]

U.S. Cl. 528—53 12 Claims

1. A method for the preparation of a rigid cast or transfer molded polyisocyanurate thermoset polymer composition which comprises conveying from a mixing chamber into a mold cavity of the desired configuration, which may be compressed to react at temperatures of from about ambient to about 140° C. a reaction mixture of an organic di- or polyisocyanate and from about 2 to about 50 parts by weight of a cyclic alkylene carbonate, based on the isocyanatecarbonate composition, and a soluble adduct of a tertiary amine and a cyclic alkylene carbonate as catalyst at a concentration of from about 0.005 to about 5.0 weight percent based on the total composition.

4,757,124
PROCESS FOR PRODUCTION OF VINYL CHLORIDE POLYMER

[illegible], Yokohama; [illegible], Ichihara; [illegible], and [illegible], both of Ibaraki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. [illegible], Jul. [illegible], 1985, abandoned. This application Jul. 21, 1987, Ser. No. [illegible]

Claims priority, application Japan, Jul. 23, 1984, [illegible]; Jul. 26, 1984, [illegible]

Int. Cl.⁴ C08F *2/18, 2/22, 2/44*

U.S. Cl. 526—62 12 Claims

1. A process for production of a vinyl chloride polymer comprising polymerizing, by suspension polymerization or emulsion polymerization, vinyl chloride monomer or a mixture of vinyl chloride monomer with a vinyl monomer copolymerizable with said vinyl chloride monomer in an aqueous medium in a polymerizer, wherein the inner wall surface of the polymerizer and portions of the auxiliary equipment thereof which come into contact with the monomer during polymerization have been previously coated with a scaling preventive coating comprising at least one component selected from dyes and

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pigments, and the chloride ion concentration in the reaction mixture is controlled to not higher than 100 ppm during the polymerization.

4,757,125

BICYCLIC AMIDE ACETAL-BASED CURE ACCELERATORS FOR AMINE CURING OF EPOXY COMPOSITIONS

Anil B. Goel, Worthington, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

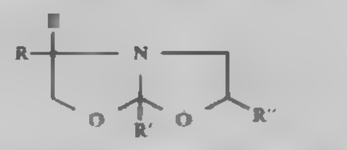
Filed Jul. 8, 1987, Ser. No. 70,990

Int. Cl.⁴ [illegible]

U.S. Cl. 528—90 17 Claims

1. The process for accelerating the cure of a mixture comprising an epoxy resin and an amine hardener comprising including in the mixture from 0.5% to about 15% by weight of a catalyst which is the reaction product of a bicyclic amide acetal and ammonium thiocyanate and curing the resulting mixture at a temperature in the range of from about ambient temperature to about 150° C.

2. The process of claim 1 wherein the bicyclic amide acetal is of the formula I



I

wherein R, R' and R'' independently represent hydrogen, an alkyl group having from 1 to 20 carbon atoms, an alkyl ether group having from 1 to 20 carbon atoms, an aryl group having from 6 to 20 carbon atoms. An aryl ether group having from 6 to 20 carbon atoms on an alkaryl group having from 7 to 20 carbon atoms.

4,757,126

PROCESS FOR PREPARING CRYSTALLINE AROMATIC POLYETHERKETONE

Isaburo Fukawa, and Tsuneaki Tanabe, both of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

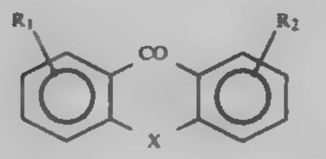
Filed Feb. 26, 1986, Ser. No. 833,076

Claims priority, application Japan, Feb. 27, 1985, 60-36280; Jul. 5, 1985, 60-146650; Jul. 5, 1985, 60-146651

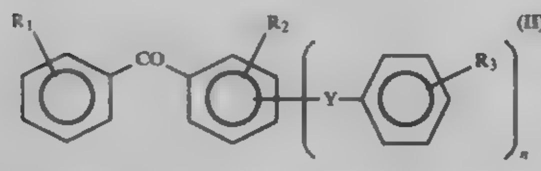
Int. Cl.⁴ C08G *8/02, 14/00*

U.S. Cl. 528—125 16 Claims

1. A process for preparing a crystalline aromatic polyetherketone having a reduced viscosity of 0.6 or more which comprises polycondensing 4,4'-dihydroxybenzophenone or hydroquinone with a dihalogeno aromatic ketone in a solvent having the following general formula (I) or (II):



(I)



(II)

wherein each of R_1, R_2 and R_3 is independently a hydrogen atom, a C_{1-3} alkyl group or a phenyl group; X is an oxygen atom, a sulfur atom or a direct bond; Y is an oxygen atom or a ketone group; and n is 0 or 1;

in the presence of an alkali compound.

4,757,127

PREPARATION OF FLUORINE DERIVATIVES OF PHOSPHONIC ACID

Jean Tessier, Vincennes, and Van T. Truong, Montfermeil, both of France, assignors to Roussel Uclaf, Paris, France

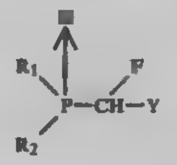
Filed Nov. 20, 1986, Ser. No. 933,031

Claims priority, application France, Nov. 20, 1985, 85 17145

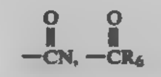
Int. Cl.⁴ C07F *9/40*

U.S. Cl. 558—141 9 Claims

1. A process for the preparation of phosphonic acid compounds of the formula

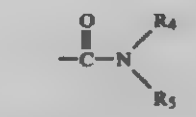


wherein R_1 and R_2 are individually selected from the group consisting of aryl of 6 to 14 carbon atoms, alkyl of 1 to 8 carbon atoms, alkenyl and alkynyl of 2 to 8 carbon atoms, aryloxy of 6 to 14 carbon atoms, alkoxy of 1 to 8 carbon atoms, alkenyloxy and alkynyloxy of 2 to 8 carbon atoms and aralkoxy and aralkyl of 7 to 18 carbon atoms, or R_1 and R_2 together with a phosphorus atom form a ring, Y is selected from the group consisting of

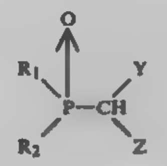


$$-\overset{O}{\overset{\|}{C}}N,\ -\overset{O}{\overset{\|}{C}}R_6$$

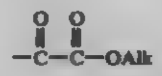
and —$COOR_3$, R_3 is selected from the group consisting of alkyl of 1 to 8 carbon atoms, alkenyl and alkynyl of 2 to 8 carbon atoms, and



R_4 and R_5 are individually selected from the group consisting of hydrogen, alkyl of 1 to 8 carbon atoms, alkenyl and alkynyl of 2 to 8 carbon atoms and aryl of 6 to 14 carbon atoms and R_6 is selected from the group consisting of alkyl of 1 to 10 carbon atoms, alkenyl and alkynyl of 2 to 10 carbon atoms cycloalkyl and cycloalkenyl of 3 to 10 carbon atoms and aryl of 6 to 14 carbon atoms comprising reacting a compound of the formula



wherein R_1, R_2 and Y have the above definitions and Z is selected from the group consisting of —CHO and



$$-\overset{O}{\overset{\|}{C}}-\overset{O}{\overset{\|}{C}}-OAlk$$

and Alk is alkyl of 1 to 8 carbon atoms or alkenyl or alkynyl of 2 to 8 carbon atoms with 5 to 20% by volume of fluorine in the presence of a basic agent to obtain the corresponding compound of formula I.

4,757,128

HIGH MOLECULAR WEIGHT POLYANHYDRIDE AND PREPARATION THEREOF

Abraham J. Domb, Brookline, and Robert S. Langer, Somerville, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Aug. 1, 1986, Ser. No. [illegible]

Int. Cl.⁴ C08G [illegible]

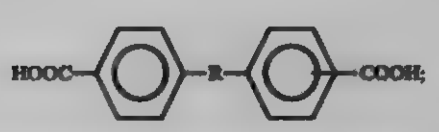
U.S. Cl. 528—271 20 Claims

1. A high molecular weight polyanhydride having a weight average molecular weight of greater than 20,000 and an intrinsic viscosity of greater than 0.3 dl/g in chloroform at 23° C., said polyanhydride produced from at least one dicarboxylic acid selected from the group consisting of:

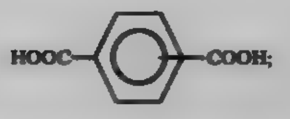
aliphatic dicarboxylic acids having the formula:

$HOOC—H_2C—R—CH_2—COOH$;

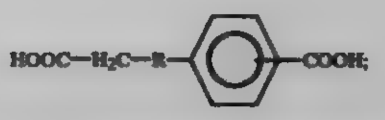
aromatic dicarboxylic acids having the formula:



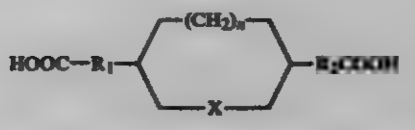
aromatic dicarboxylic acids having the formula:



aliphatic-aromatic dicarboxylic acids having the formula:



aromatic and aliphatic heterocyclic dicarboxylic acids having the formula:



wherein X is selected from the group consisting of oxygen, nitrogen, and sulfur, and

n is an integer between 1 and 3; and

aromatic and aliphatic heterocyclic dicarboxylic acids of the above formula in combination with at least one dicarboxylic acid selected from the group consisting of aliphatic dicarboxylic acids, aromatic-aliphatic dicarboxylic acids, and aromatic dicarboxylic acids having more than one phenyl group;

wherein the R groups are divalent organic radical groups.

4,757,129

COMPOSITIONS FOR PRODUCING POLYMERS OF HIGH REFRACTIVE INDEX AND LOW YELLOWNESS

[illegible], Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

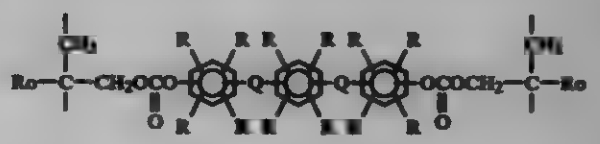
Division of Ser. No. [illegible], Dec. 27, 1985, abandoned. This application Aug. 25, 1986, Ser. No. [illegible]

The portion of the term of this patent subsequent to Nov. 11, 2003, has been disclaimed.

Int. Cl.⁴ C08F [illegible]

U.S. Cl. [illegible] 12 Claims

1. A polymer comprising units represented by the formula



wherein each R of each of said units is independently hydrogen, halo, or a monovalent organo group containing from 1 to about 12 carbon atoms; each Ro of each of said units is independently hydrogen, halo, or alkyl; and each Q of each of said units is independently oxy, sulfonyl, alkanediyl, or alkylidene.

4,757,130

CONDENSATION POLYMERS WITH PENDANT SIDE CHAINS EXHIBITING NONLINEAR OPTICAL RESPONSE

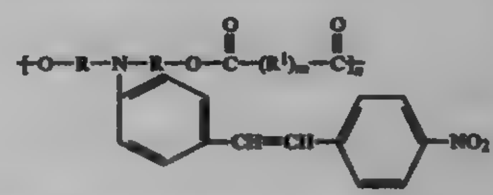
Ronald N. DeMartino, Wayne, N.J., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Filed Jul. 1, 1987, Ser. No. [illegible]

Int. Cl.⁴ C08G *63/44, 69/44*

U.S. Cl. 528—288 24 Claims

1. A polymer which is characterized by a recurring condensation unit corresponding to the formula:



where R is an alkylene radical containing between about 1-20 carbon atoms; R^1 is a divalent organic radical containing between about 1–20 carbon atoms; m is an integer with a value of zero or one; and n is an integer of at least 3.

4,757,131

PRODUCTION OF HIGH-MOLECULAR POLYTETRAMETHYLENE ADIPAMIDE PELLET

Antonius J. P. Bongers, Born, and Eise Roerdink, Beek (L.), both of Netherlands, assignors to Stamicarbon B.V., Geleen, Netherlands

Filed Nov. 26, 1986, Ser. No. [illegible]

Claims priority, application Netherlands, Jul. 22, 1986, 8601893

Int. Cl.⁴ C08G *69/46*

U.S. Cl. 528—335 16 Claims

1. A method for producing a high molecular weight polyamide pellet consisting substantially of units having the formula

$—NH—(CH_2)_4—NH—CO—(CH_2)_4—CO—$

comprising:

(1) condensing 1,4-diamino butane and adipic acid to produce a solid polyamide prepolymer particle mass, said

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polyamide prepolymer have a number-average molecular weight of less than approximately 10,000;

(2) compressing said prepolymer particle mass into pellets; and

(3) thereafter after-condensing said pellets in the solid phase at a temperature above 200° C., under a water-vapor-containing atmosphere until said high molecular weight polyamide is obtained having a number average molecular weight of at least 15,000.

4,757,132

CYCLIC POLYESTER OLIGOMER POLYMERIZATION

Daniel J. Brunelle, Scotia, and Thomas G. Shannon, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

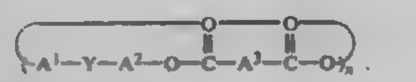
Filed Oct. 28, 1986, Ser. No. 920,540

Int. Cl.^{4} [illegible]

U.S. Cl. 528—357 9 Claims

1. A method for preparing a linear polyester which comprises contacting with a transesterification catalyst, at a temperature in the range of about 200°–300° C., a composition comprising cyclic polyester oligomers of the formula

(I)



$$\left(-A^1-Y-A^2-O-\overset{\overset{O}{\|}}{C}-A^3-\overset{\overset{O}{\|}}{C}-O\right)_n,$$

wherein each of A^1 and A^2 is a monocyclic divalent aromatic radical, A^3 is a divalent aliphatic or m- or p-linked monocyclic aromatic or alicyclic radical, Y is a single bond or Y is a divalent bridging group and n is from 2 to about 7.

4,757,133

PHYSIOLOGICALLY ACTIVE PEPTIDE

Osamu Ito, Niihari, and Shiro Tachibana, Kashiwa, both of Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

Filed Apr. 6, 1987, Ser. No. 35,125

Claims priority, application Japan, Apr. 17, 1986, 61-86987

Int. Cl.^{4} C07K *7/10*

U.S. Cl. 530—324 3 Claims

1. A peptide having the primary structural formula:

His—Ser—Asp—Ala—Val—Phe—Thr—Asp—

Asn—Tyr—Thr—Arg—Leu—Arg—Lys—Gln—

X—Ala—Val—Lys—Lys—Tyr—Leu—Asn—

Ser—Ile—Leu—Asn—Gly—Y

in which X is Met and Y is OH, Lys-OH, Arg-OH, Lys-Arg-OH or Lys-NH2 or X is Leu and Y is Lys-NH2, Lys-OH or Lys-Arg-OH.

4,757,134

IgA BINDING PROTEIN

Milan Blake; Emil Gotschlich, both of New York, N.Y., and Gregory J. Russell-Jones, [illegible], Australia, assignors to The Rockefeller University, New York, N.Y.

Continuation-in-part of Ser. No. 446,317, Dec. 2, 1982, abandoned. This application Feb. 13, 1986, Ser. No. [illegible]

Int. Cl.^{4} C07K *15/00, 3/28*

U.S. Cl. 530—350 8 Claims

1. An IgA binding cell wall bound protein which is isolatable from Group B streptococci and will bind IgA characterized as having a molecular weight of about 132,000 when determined by sodium dodecyl sulfate polyacrylamide gel electrophoresis, reacting specifically with the Fc portion of the human IgA, hydrolyzable by protease, containing the following amino acids in the residues per 130,000 molecular weight indicated:

Asp 158	Thr 81	Ser 58
Glu 254	Pro 57	Gly 37
Ala 51	Met 18	Val 75
Ile 33	Leu [illegible]	Tyr 23
Phe 17	His 26	Tyr 158
	Arg 19	

the N-terminal amino acid sequence as determined by Edman degradation being Ser-Lys-Leu-Val-Lys-Asp-Lys-Leu-Val-Lys-Thr-Lys-Glu-.

4,757,135

BICYCLIC FORMAZAN COMPOUNDS CONTAINING A BETA-SULFATOETHYL-SULFONYL OR VINYL SULFONYL GROUP, SUITABLE AS FIBER REACTIVE DYESTUFFS

Günther Schwaiger, Frankfurt am Main, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. [illegible], Oct. 31, 1985, abandoned. This application Oct. 2, 1986, Ser. No. 915,941

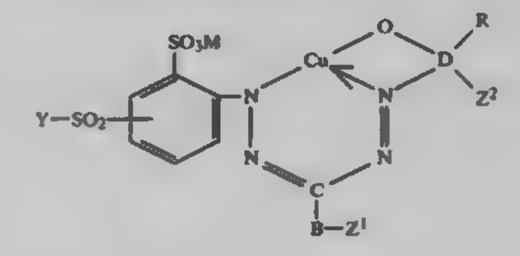
Claims priority, application Fed. Rep. of Germany, Nov. 3, 1984, [illegible]

The portion of the term of this patent subsequent to Aug. 19, 2003, has been disclaimed.

Int. Cl.^{4} C09B *50/00, 62/503;* D06P *1/384, 3/66*

U.S. Cl. 534—618 11 Claims

1. A compound of the formula



in which

Y is vinyl or a group of the formula

$$-CH_2-CH_2-E$$

in which E is sulfato;

the group $Y-SO_2-$ is bonded to the benzene ring in meta-position relative to the indicated group $-SO_3M$ and in para-position relative to the nitrogen atom, or in para-position relative to the indicated group $-SO_3M$ and in meta-position relative to the nitrogen atom;

M is hydrogen or an alkali metal;

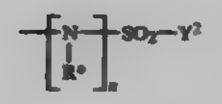
B is phenylene unsubstituted or substituted by one or two substituents selected from the group consisting of hydroxy, halogen, alkyl of 1 to 5 carbon atoms, alkoxy of 1 to 4 carbon atoms and a group $-SO_2-Y^1$ in which Y^1 is vinyl or a group of the formula $-CH_2-CH_2-E^1$ in which E^1 is hydroxy, halogen, lower alkanoyloxy, phosphato, thiosulfato or sulfato;

Z^1 is hydrogen, or is a water-solubilizing group which is bonded once or twice to B, selected from carboxy and sulfo;

D is a benzene ring to which the oxygen atom and the nitrogen atom are bonded in ortho-position relative to each other and which is unsubstituted or substituted by one or two substituents selected from the group consisting of halogen, nitro, alkyl of 1 to 5 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkylsulfonyl of 1 to 4 carbon atoms and alkanoylamino of 2 to 5 carbon atoms;

Z^2 is hydrogen or a water-solubilizing group which is bonded once or twice to D, selected from carboxy or sulfo;

R is hydrogen or a group of the formula



$$-\left[\begin{matrix}N\\|\\R^*\end{matrix}\right]_n-SO_2-Y^2$$

in which

R^* is hydrogen or alkyl of 1 to 4 carbon atoms unsubstituted or substituted by a hydroxy, sulfato, sulfo or carboxy,

n is zero or 1, and

Y^2 is vinyl or a group of the formula

$$-CH_2-CH_2-E^2$$

in which E^2 is hydroxy, halogen, lower alkanoyloxy, phosphato, thiosulfato or sulfato.

4,757,136

WATER-SOLUBLE AZO COMPOUNDS CONTAINING FIBER-REACTIVE GROUPS AND HAVING A SULFO-NAPHTHOL COUPLING COMPONENT WITH A TRIAZINYLAMINO SUBSTITUENT SUITABLE AS DYESTUFFS

Hartmut Springer, Königstein/Taunus; Michael Kunze, Hofheim am Taunus, both of Fed. Rep. of Germany; Marcos Segal, Suzano, Brazil, and Werner H. Russ, Hofheim am Taunus, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

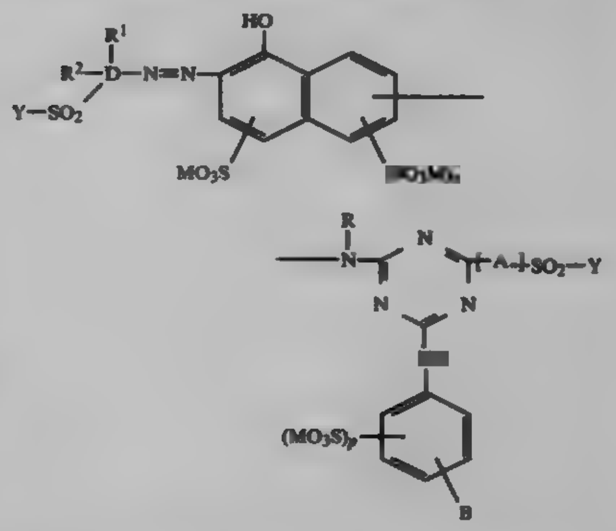
Filed Sep. 30, 1986, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1985, [illegible]; Jul. 17, 1986, [illegible]

Int. Cl.^{4} C09B *62/085, 62/45, 62/51;* D06P *1/384*

U.S. Cl. 534—642 3 Claims

1. A water-soluble azo compound of the formula



in which

D is a benzene ring or a naphthalene ring;

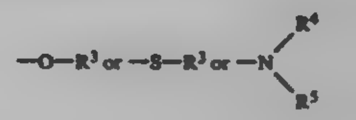
R^1 is hydrogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, sulfo or carboxy;

R^2 is hydrogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, sulfo, carboxy, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine, or is 1- or 2-naphthyl, or is 1- or 2-naphthyl substituted by 1, 2 or 3 sulfo, or is hydroxy, nitro or halogen;

R is hydrogen, alkyl of 1 to 4 carbon atoms or alkyl of 1 to 4 carbon atoms substituted by 1 or 2 substituents selected from the group consisting of: alkoxy of 1 to 4 carbon atoms; sulfo; carboxy; hydroxy; sulfato; phenyl; phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; 1- or 2-naphthyl; and 1- or 2-naphthyl substituted by 1, 2 or 3 sulfo;

Y is *β*-thiosulfatoethyl, *β*-phosphatoethyl, *β*-chloroethyl, vinyl or *β*-sulfatoethyl;

A is a group of the formula



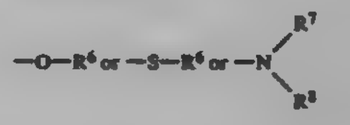
$$-O-R^3 \text{ or } -S-R^3 \text{ or } -N\begin{matrix}R^4\\ \\R^5\end{matrix}$$

in which

R^3 is alkyl of 1 to 4 carbon atoms substituted by the group $-SO_2-Y$, or is alkyl of 1 to 4 carbon atoms substituted by 1 alkoxy of 1 to 4 carbon atoms, sulfo, carboxy, hydroxy, sulfato, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine, or by 1- or 2-naphthyl or 1- or 2-naphthyl substituted by 1 or 2 sulfo, one of the alkyl, phenyl and naphthyl moities of which being substituted by the group $-SO_2-Y$, or R^3 is phenyl substituted by the group $-SO_2-Y$, or phenyl substituted by 1 alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo or chlorine and by the group $-SO_2-Y$, or is 1- or 2-naphthyl substituted by the group $-SO_2-Y$, or is 1- or 2-naphthyl substituted by 1 or 2 sulfo and by the group $-SO_2-Y$, R^4 is hydrogen or alkyl of 1 to 4 carbon atoms or alkyl of 1 to 4 carbon atoms substituted by 1 or 2 substituents selected from the group consisting of: alkoxy of 1 to 4 carbon atoms; sulfo; carboxy; hydroxy; sulfato; phenyl; phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; 1- or 2-naphthyl; and 1- or 2-naphthyl substituted by 1, 2 or 3 sulfo; or R^4 is alkenyl of 2 to 4 carbon atoms or cyclopentyl or cyclohexyl, or cyclopentyl or cyclohexyl substituted by 1, 2 or 3 methyl, and

R^5 is alkyl of 1 to 4 carbon atoms substituted by the group $-SO_2-Y$, or is alkyl of 1 to 4 carbon atoms substituted by 1 alkoxy of 1 to 4 carbon atoms, sulfo, carboxy, hydroxy, sulfato, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine, or by 1- or 2-naphthyl or 1- or 2-naphthyl substituted by 1 or 2 sulfo, one of the alkyl, phenyl and naphthyl moieties of which being substituted by the group $-SO_2-Y$, or R^5 is phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine and substituted by the group $-SO_2-Y$, or is 1- or 2-naphthyl substituted by the group $-SO_2-Y$, or is 1- or 2-naphthyl substituted by 1 or 2 sulfo and by the group $-SO_2-Y$;

B is a group of the formula



$$-O-R^6 \text{ or } -S-R^6 \text{ or } -N\begin{matrix}R^7\\ \\R^8\end{matrix}$$

in which

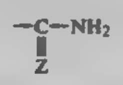
R^6 is hydrogen, or is alkyl of 1 to 4 carbon atoms unsubstituted or substituted by 1 or 2 substituents selected from

VOL 1092 ISS 2 JL 12 1988 UMI

the group consisting of: alkoxy of 1 to 4 carbon atoms; sulfo; carboxy; hydroxy; sulfato; phosphato; phenyl; naphthyl; phenyl which is substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; and naphthyl which is substituted by 1, 2 or 3 sulfo; or R^6 is phenyl or naphthyl or is phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine, or is naphthyl substituted by 1, 2 or 3 sulfo,

R^7 is hydrogen, or is alkyl of 1 to 4 carbon atoms unsubstituted or substituted by 1 or 2 substituents selected from the group consisting of: alkoxy of 1 to 4 carbon atoms; sulfo; carboxy; hydroxy; sulfato; phosphato; phenyl; naphthyl; phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; and naphthyl substituted by 1, 2 or 3 sulfo; or R^7 is alkenyl of 2 to 4 carbon atoms or cyclopentyl or cyclohexyl, or cyclopentyl or cyclohexyl substituted by 1, 2 or 3 methyl, and

R^8 is hydrogen, or is alkyl of 1 to 4 carbon atoms unsubstituted or substituted by 1 or 2 substituents selected from the group consisting of: alkoxy of 1 to 4 carbon atoms; sulfo; carboxy; hydroxy; sulfato; phosphato; phenyl; naphthyl; phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; and naphthyl substituted by 1, 2 or 3 sulfo; or R^8 is alkenyl of 2 to 4 carbon atoms or is phenyl or naphthyl, or is phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine, or is naphthyl substituted by 1, 2 or 3 sulfo, or R^8 is cyano or a group of the formula



$$-\underset{\underset{Z}{\|}}{C}-NH_2$$

in which Z is oxygen, sulfur, or =N—H, or R^8 is amino or amino monosubstituted or disubstituted by substituents selected from: alkyl of 1 to 4 carbon atoms; phenyl; naphthyl; phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; and naphthyl substituted by 1, 2 or 3 sulfo; or R^8 is a group of the formula

$$-\underset{\|}{C}-W$$

in which

W is alkyl of 1 to 4 carbon atoms unsubstituted or substituted by 1 or 2 substituents selected from group consisting of: alkoxy of 1 to 4 carbon atoms; sulfo; carboxy; hydroxy; sulfato; phosphato; phenyl; naphthyl; phenyl substituted by 1 or 2 substituents selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxy, nitro, carboxy, sulfo and chlorine; and naphthyl substituted by 1, 2 or 3 sulfo;

or R^8 is alkoxy of 1 to 4 carbon atoms unsubstituted or substituted by hydroxy, alkoxy of 1 to 4 carbon atoms or alkoxyalkoxy of 1 to 4 carbon atoms in each of the alkyl moieties;

or R^7 and R^8 together with the nitrogen are morpholino, piperidino or piperazino;

M is hydrogen or an alkali metal or alkaline earth metal;

n is zero or 1;

p is zero, 1 or 2.

4,757,137

[illegible]TRIFLUOROMETHYL CONTAINING PHENYLAZONAPHTHOL DYESTUFFS

Gerhard Wolfrum, Leverkusen; Erich Klauke, Odenthal, and Hans-Günter Otten, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

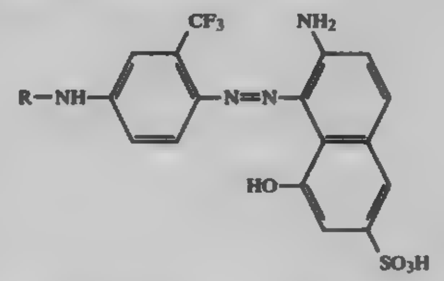
Continuation of Ser. No. 391,898, Jun. 22, 1982, abandoned, which is a continuation of Ser. No. 884,940, Mar. 9, 1978, abandoned. This application Sep. 22, 1983, Ser. No. 534,914

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1977, 2712170

Int. Cl.⁴ C09B *29/01, 29/033, 29/30, 62/02*

U.S. Cl. 534—862 **4 Claims**

1. A dyestuff of the formula



wherein

R is C_1–C_4-alkylcarbonyl, C_1–C_4-alkoxy carbonyl or benzoyl.

4,757,138

PROCESS FOR PRODUCING ETOPOSIDE

Tadashi Fujii, Iwatsuki, and Yukio Chikui, Tokyo, both of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 733,918, May 14, 1985. This application Sep. 8, 1986, Ser. No. 904,372

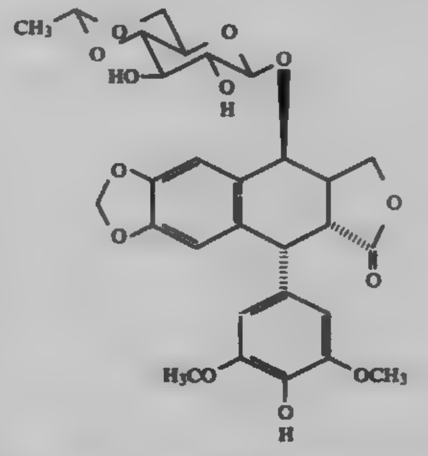
Claims priority, application Japan, May 22, 1984, 59-101765

Int. Cl.⁴ C07H *15/24*

U.S. Cl. 536—18.1 **6 Claims**

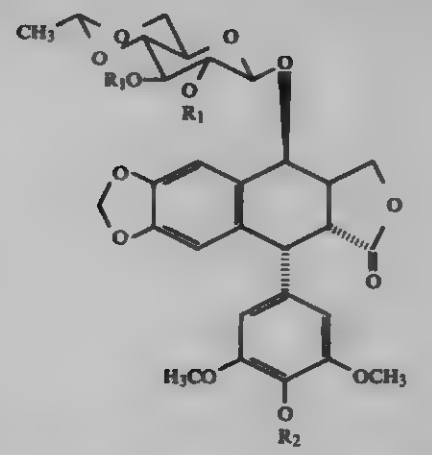
1. A process for producing etoposide represented by the formula (I):

(I)



which comprises reacting a 4′-halogenoacetyl-4′-demethylepipodophyllotoxin-β-D-2,3-di-O-halogenoacetyl-4,6-O-ethylideneglucoside represented by the formula:

(III)



wherein R_1 and R_2, which may be the same or different, represent —$COCHX_2$ or —$COCX_3$, wherein X represents a chlorine atom, with lower C_1–C_4 alcohols having 1 to 3 hydroxyl groups in the presence of ammonium salt of an organic carboxylic acid to remove the halogenoacetyl groups at a temperature of −10° to 100° C.

4,757,139

5-FLUORO-2′-DEOXYURIDINE DERIVATIVE, PROCESSES FOR PREPARING SAME AND ANTITUMOR COMPOSITION CONTAINING THE SAME

Takeo Kawaguchi, Tokyo; Masahiko Saito, Saitama, and Yoshiki Suzuki, Tokyo, all of Japan, assignors to Teijin Limited, Osaka, Japan

PCT No. PCT/JP84/00368, § 371 Date Mar. 20, 1985, § 102(e) Date Mar. 20, 1985, PCT Pub. No. WO85/00608, PCT Pub. Date Feb. 14, 1985

PCT Filed Jul. 20, 1984, Ser. No. 717,275

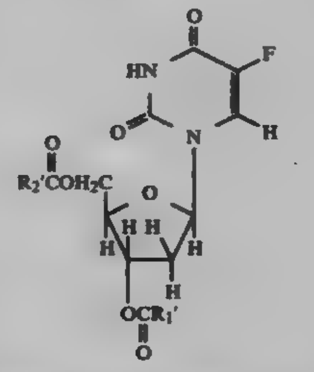
Claims priority, application Japan, Jul. 20, 1983, [illegible]; Jan. 23, 1984, [illegible]

Int. Cl.⁴ A61K *31/70;* **C07H** *19/08*

U.S. Cl. 536—23 **1 Claim**

1. The 5-fluoro-2′-deoxyuridine derivative expressed by the following formula (I′)

(I′)



wherein R_1' and R_2' are the same or different from each other, each representing an alkyl group of 1 to 18 carbon atoms having a carboxyl group as substituent, or its pharmacalogically acceptable salt.

4,757,140

COENZYME A DERIVATIVES OF ALL-TRANS- AND 13-CIS RETIONIC ACID

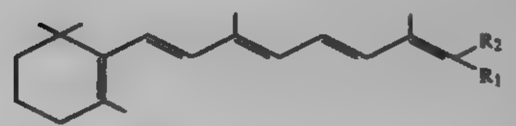
Hector F. DeLuca, Madison, Wis.; Andrzej Kutner, Warsaw, Poland, and Heinrich K. Schnoes, Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jan. 2, 1986, Ser. No. 869,791

Int. Cl.⁴ C07H *17/20*

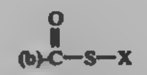
U.S. Cl. 536—27 **3 Claims**

1. Compounds having the formula



wherein R_1 and R_2 are each selected from the group consisting of

(a) hydrogen



$$(b)-\overset{\overset{O}{\|}}{C}-S-X$$

where X represents Coenzyme A residue except that both of R_1 and R_2 cannot be (a), but one of R_1 R_2 must be (a).

4,757,141

AMINO-DERIVATIZED PHOSPHITE AND PHOSPHATE LINKING AGENTS, PHOSPHORAMIDITE PRECURSORS, AND USEFUL CONJUGATES THEREOF

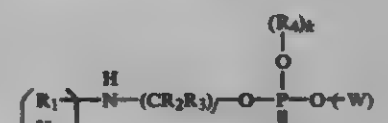
Steven Fung, Palo Alto; Sam L. Woo, Redwood City, and Lloyd M. Smith, South Pasadena, all of Calif., assignors to Applied Biosystems, Incorporated, Foster City, Calif.

Filed Aug. 26, 1985, Ser. No. 769,170

Int. Cl.⁴ C07H *19/06, 19/10, 19/16, 19/20*

U.S. Cl. 536—27 **17 Claims**

1. A compound of the formula:



$$\begin{pmatrix}R_1\\H\end{pmatrix}\!\!\!-\overset{H}{N}-(CR_2R_3)_j-O-\underset{\underset{(O)_i}{\|}}{\overset{\overset{(R_4)_k}{|}}{\overset{\overset{O}{|}}{P}}}-O\leftarrow W)$$

wherein

i is 0 or 1;

j is in the range of 2 to 10;

k is 1 when i is 0, or k is 0 or 1 when i is 1;

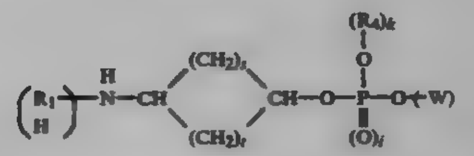
R_1 is an amino protection group;

R_2 and R_3 taken separately each represent hydrogen, lower alkyl, lower cycloalkyl, lower acyl, cyano, halo, or nitro;

R_4 is alkyl, alkenyl, aryl, aralkyl, or cycloalkyl containing up to 10 carbon atoms; and

W represents a hydroxylic polymer support, or an oligonucleotide linked to a polymer support.

10. A compound of the formula:



$$\begin{pmatrix}R_1\\H\end{pmatrix}\!\!\!-\overset{H}{N}-CH\begin{matrix}(CH_2)_s\\ \\(CH_2)_t\end{matrix}CH-O-\underset{\underset{(O)_i}{\|}}{\overset{\overset{(R_4)_k}{|}}{\overset{\overset{O}{|}}{P}}}-O\leftarrow W)$$

wherein

R_1 is an amino protection group;

s is in the range of 0 to 8, t is in the range of 0 to 8, and s+t is in the range of 1 to 8;

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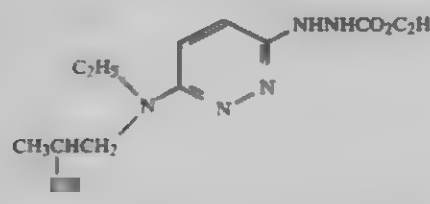
R_4 represents lower alkyl; electron-withdrawing beta-substituted ethyl; electron-electron-withrawing substituted phenyl; or electron-withdrawing substituted phenylethyl;
i is O or l;
k is l when i is O or k is O or l when i is l; and
W is an oligonucleotide, a hydroxylic polymer support, or an oligonucleotide liked to a polymer support.

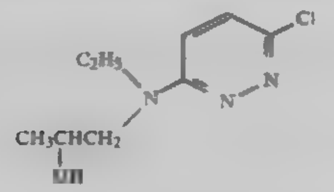
4,757,142
PROCESS FOR PREPARING 6-AMINO-3-HYDRAZINOPYRIDAZINE DERIVATIVES

Mario Piazza, Corsico; Riccardo Monguzzi, Monza, and Riccardo Colombo, Sesto San Giovanni, all of Italy, assignors to ISF Societa per Azioni, Milan, Italy
Filed May 13, 1986, Ser. No. 862,723
Claims priority, application Italy, May 13, 1985, 20674 A/85
Int. Cl.⁴ C07D *237/20, 237/12*
U.S. Cl. 544—224 8 Claims

1. A process for preparing a compound of Structure (4)


(4)

which comprises reacting a compound of Structure (3)


(3)

with ethyl carbazate, characterised in that the reaction is carried out in water and the compound of Structure (3) is in the form of the hydrochloride, sulfate, or phosphate salt.

4,757,143
CATALYTIC METHOD FOR THE MANUFACTURE OF TRIETHYLENEDIAMINE

Steven H. Vanderpool, New Braunfels; Walter H. Brader, Jr., Austin; Ernest L. Yeakey, Austin; Edward C. Nieh, Austin, and Thomas T. McConnell, Austin, all of Tex., assignors to Texaco Inc., White Plains, N.Y.
Filed Jun. 9, 1986, Ser. No. 871,939
Int. Cl.⁴ C07D *487/08, 295/02;* C07B *35/10*
U.S. Cl. 544—352 12 Claims

1. A method for the manufacture of triethylenediamine which comprises bringing an aqueous solution of a hydroxyethyl ethyleneamine feedstock containing about 5 to about 50 wt. % of said feedstock into contact with a cyclization catalyst at a temperature of about 300°-400° C. for a period of time sufficient to convert at least a portion of said feedstock to triethylenediamine;

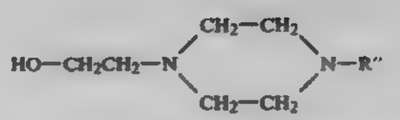
said feedstock being:

a. an acyclic hydroxyethyl ethyleneamine having the formula:

$$HO—CH_2CH_2—(NH—CH_2CH_2)^n—R \quad (I)$$

wherein R represent —OH or NH_2 and n is an integer having a value of 1 or 2; or

b. a cyclic hydroxyethylenepolyamine having the formula:


(II)

wherein R″ represents H, $—CH_2CH_2OH$;

or a mixture of said acyclic hydroxyethyl ethyleneamines and said cyclic hydroxyethylenepolyamines;

c. said catalyst composition consisting essentially of titania or zirconia having from about 0.5 to about 7 wt. % of phosphorus thermally chemically bonded to the surface thereof in the form of phosphate bonds.

4. A method for the manufacture of triethylenediamine which comprises bringing an aqueous solution of a hydroxyethyl ethyleneamine feedstock containing about 5 to about 50% of said feedstock into contact with a cyclization catalyst at a temperature of about 300°-400° for a period of time sufficient to convert at least a portion of said feedstock to triethylenediamine;

said feedstock being an ethyoxylation product of a mixture of N-hyroxyethylpiperazine, N-aminoethylpiperazine, diethylenetriamine and aminoethylethanolamine ethyloxylated in the molar ratio of about 1 to about 1.5 moles of ethylene oxide per molar equivalent of said mixture or a bimolar ethyloxylation product of ethylenediamine,

said catalyst composition consisting essentially of titania or zirconia having from about 0.5 to about 7 wt. % of phosphorus thermally chemically bonded to the surface thereof in the form of phosphate bonds.

4,757,144
PREPARING TERTIARY AMINE FROM FORMALDEHYDE AND PRIMARY AND/OR SECONDARY AMINE

Kazuhiko Okabe, Wakayama; Yukinaga Yokota, Osaka; [illegible] Matsumoto, and [illegible], both of Wakayama, all of Japan, assignors to Kao Corporation, Tokyo, Japan
Continuation of Ser. No. 673,240, Nov. 20, 1984, abandoned.
This application Sep. 30, 1986, Ser. No. 913,621
Claims priority, application Japan, Dec. 16, 1983, 58-238221
Int. Cl.⁴ C07C *85/08, 87/127, 87/14, 87/28*
U.S. Cl. 544—404 4 Claims

1. A process for preparing an N-methylated tertiary amine, which consists essentially of continuously adding an aqueous or methanolic solution of formaldehyde, for a time period of from 2 to 5 hours, to a reaction mixture consisting of (1) a primary amine, a secondary amine or mixture thereof and (2) from 10 to 500 ppm of palladium or platinum catalyst, calculated as the metal, based on said amine, the reaction mixture being continuously maintained under a hydrogen pressure of from 3 to 50 kg/cm² gauge and at a temperature of from 80° to 180° C., the total amount of formaldehyde added to said reaction mixture during said time period being from 1.0 to 1.2 equivalents per each active hydrogen of said amine and the accumulation of a stoichiometrically excessive amount of formaldehyde being prevented, whereby to convert substantially quantitatively said primary or secondary amine to the corresponding N-methylated tertiary amine, then removing said catalyst by filtration and recovering said N-methylated tertiary amine.

4,757,145
FLUOROPOLYETHERS CONTAINING END GROUPS ENDOWED WITH ANCHORING CAPACITY

Gerardo Caporiccio, Milan; Ezio Strepparola, Bergamo, and Maria A. [illegible], Milan, all of Italy, assignors to Montedison S.p.A., Milan, Italy
Continuation of Ser. No. 687,729, Dec. 31, 1984, abandoned.
This application Mar. 26, 1987, Ser. No. 31,180
Claims priority, application Italy, Jun. 19, 1984, 21480 A/84
Int. Cl.⁴ C07D *471/04, 277/60, 263/52;* C10M *105/08*
U.S. Cl. 546—81 6 Claims

1. Compounds having the formula:

$$(I)\ —RO—(C_3F_6O)_m—(CFXO)_n—CFX—L,$$

or

$$(II)\ R''CFXO—(C_3F_6O)_x(CFXO)_y—(C_2F_4O)_z—CFX—L,$$

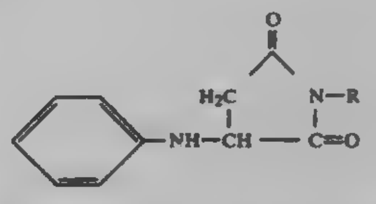
wherein the oxyalkylene groups are randomly distributed in the chain and where:

R is $—CF_3$, $—C_2F_5$, $—C_3F_7$;
X is —F, $—CF_3$;
R″, when x is different from zero, is —F, $—CF_3$, $—C_2F_5$ provided that the group R″ CFX contains not more than 3 carbon atoms, and when x is zero is L;
m is an integer from 3 to 100;
n is a finite integer, or is 0, wherein m+n is between 3 and 100, provided that, if n is finite, m/n ranges from 5 to 20 and R is $—CF_3$, and if n is zero R is $—C_2F_5$ or C_3F_7;
x is a finite integer, or is zero;
y, z are finite integers, such that x+y+z ranges from 5 to 200, while x+z/y ranges from 5 to 0.5, provided that when x is zero, z/y ranges from 1 to 0.5 and y+z ranges from 5 to 200, while X is —F;
L is an organic, non-polymerizable group Y—Z where Y is $—CH_2O—$, $—CH_2OCH_2—$, $—CF_2—$, $CF_2O—$; and
Z is an aromatic radical comprising at least one aromatic ring either containing or not containing heteroatoms, having 5 or 6 atoms, or at least one ring condensed with said aromatic ring, the group Z being further characterized in that, with metallic, polymeric and ceramic materials, it gives coordination bonds or charge transfer bonds, thus causing adsorption phenomena due to π bond onto the surface of the metallic, polymeric or ceramic material.

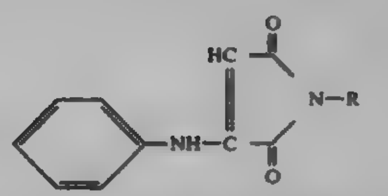
4,757,146
METHOD FOR THE PREPARATION OF QUINOLINE-2,3-DICARBOXYLIC ACID

Donald R. Maulding, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.
Filed Aug. 29, 1986, Ser. No. 902,273
Int. Cl.⁴ C07D *215/54*
U.S. Cl. 546—170 7 Claims

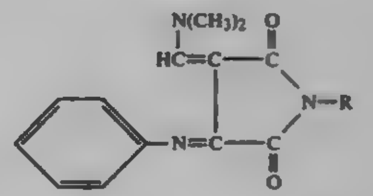
1. A method for the preparation of quinoline-2,3-dicarboxylic acid, said method comprising: oxidizing with an oxidizing agent in an inert solvent an N-substituted-3-anilinosuccinimide of formula I


I

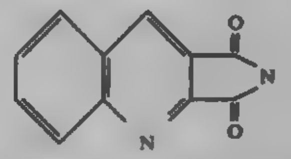
wherein R is phenyl or C_1-C_6 alkyl; reacting the thus formed formula II 3-anilino-N-substituted-maleimide


II

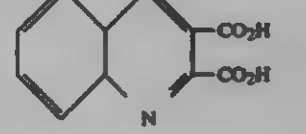
wherein R is as defined hereinabove with a minimum of 2 molar equivalents of dimethylformamide dimethylacetal in an inert hydrocarbon aromatic hydrocarbon, chlorinated hydrocarbon or chlorinated aromatic hydrocarbon solvent, or one molar equivalent of a Vilsmeier reagent prepared from dimethylformamide and two molar equivalents of $POCl_3$ in dichloromethane at reflux; isolating the resulting formula III 3-phenylimino-4-dimethylaminomethylene-N-substituted-succinimide


III

wherein R is as defined hereinabove; cyclizing the formula III compound by treatment with polyphosphoric acid at 130° C. to 145° C. to yield a formula IV substituted-acridinimide


IV

wherein R is as defined hereinabove; hydrolyzing the formula IV acridinimide with a minimum one molar equivalent base in a solvent of water or an aqueous alcohol; cooling the reaction mixture; isolating the thus formed quinoline-2,3-dicarboxylic acid (formula V) by acidification of the cooled reaction mixture;


V

and collecting the precipitated product.

4,757,147
PREPARATION OF DIAMINES FROM ALDEHYDES AND AMMONIA

Benjamin T. Outlaw, Webster Groves, and Bernardus A. Oude Alink, St. Louis, both of Mo., assignors to Petrolite Corporation, St. Louis, Mo.
Continuation-in-part of Ser. No. 627,347, Jul. 5, 1984, abandoned, which is a continuation-in-part of Ser. No. [illegible], Oct. 2, 1982, abandoned. This application Sep. 5, 1985, Ser. No. 772,972
Int. Cl.⁴ C07D *211/02, 211/72*
U.S. Cl. 546—249 7 Claims

1. A composition of the formula

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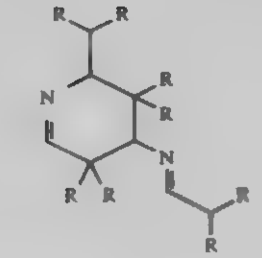


wherein R represents alkyl.

4,757,148
INTERMEDIATE 1-(2-NITRO-1-IMIDAZOLYL)-3-SUBSTITUTED AMINO-2-PROPANOLS AND THE CORRESPONDING 2,3-BUTANEDIOLS

Israr Ahmed, London; Gerald E. Adams, Epsom Downs; Ian J. Stratford, Oxted, and David Gibson, London, all of England, assignors to National Research Development Corporation, England

Division of Ser. No. 498,827, May 27, 1983, Pat. No. 4,631,289. This application Nov. 10, 1986, Ser. No. 929,095

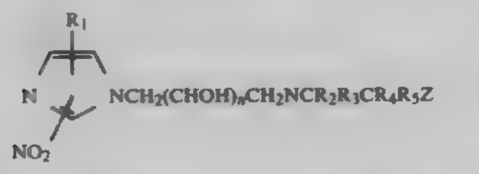
Claims priority, application United Kingdom, May 27, 1982, 8215545; Nov. 1, 1982, 8231107

Int. Cl.⁴ C07D *233/95*

U.S. Cl. 548—338 4 Claims

1. A compound of formula (VII):

(VII)



wherein

R_1 is hydrogen or alkyl of from 1 to 6 carbon atoms,

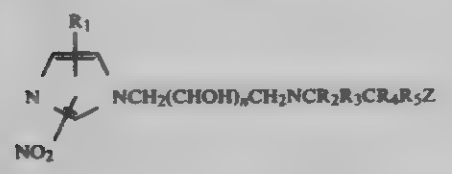
R_2, R_3, R_4 and R_5 is hydrogen, alkyl of from 1 to 6 carbon atoms, carbocyclic aryl or carbocyclic aryl-alkyl having from 1 to 6 carbon atoms in the alkyl moiety,

Z is halogen, and

n is 1.

3. A compound of formula (VII):

(VII)



wherein

R_1 is hydrogen or alkyl of from 1 to 6 carbon atoms,

R_2, R_3, R_4 and R_5 is hydrogen, alkyl of from 1 to 6 carbon atoms, carbocyclic aryl or carbocyclic aryl-alkyl having from 1 to 6 carbon atoms in the alkyl moiety,

Z is halogen, and

n is 2.

4,757,149
SYNTHESIS OF BIS(N-SUBSTITUTED PHTHALIMIDE)ETHERS

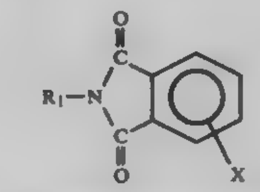
Louis M. Maresca, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.

Filed Dec. 31, 1986, Ser. No. 948,045

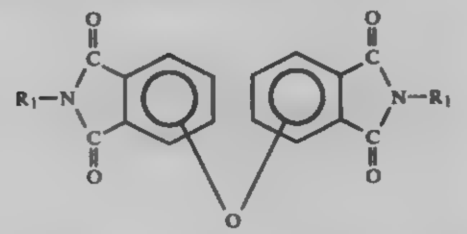
Int. Cl.⁴ C07D *209/48*

U.S. Cl. 548—461 17 Claims

1. A method for synthesizing bis(N-substituted phthalimide)ether, comprising heating a reaction mixture consisting essentially of a compound of formula



and an essentially stoichiometrically equivalent amount of an alkali or alkaline earth metal carbonate in a polar aprotic solvent under ether-forming conditions, and recovering a bis(N-substituted phthalimide)ether of the formula



from the reaction mixture, wherein R_1 is selected from the group consisting of hydrogen; a monovalent organic radical selected from a lower alkyl group having from 1 to about 10 carbon atoms; and an aromatic hydrocarbon radical, or halogenated derivative thereof, having from about 6 to about 20 carbon atoms; and X is a leaving group.

4,757,150
POLYETHERIMIDE BISPHENOL COMPOSITIONS

Thomas L. Guggenheim, Scotia; Joseph W. Guiles, Cohoes, and John W. Verbicky, Jr., Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

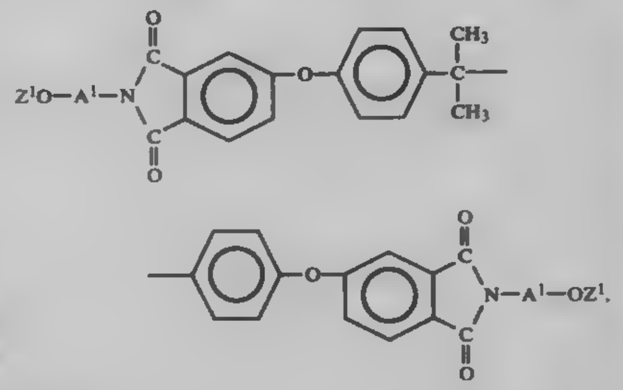
Filed Jul. 31, 1986, Ser. No. 891,014

The portion of the term of this patent subsequent to Sep. 9, 2003, has been disclaimed.

Int. Cl.⁴ C07D *209/48*

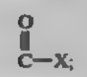
U.S. Cl. 548—461 4 Claims

1. A polyetherimide bisphenolic compound of the formula



wherein:

Z¹ is hydrogen or



$\overset{\overset{\displaystyle O}{\|}}{C}-X;$

A¹ is m- or p-phenylene; and

X is chlorine or bromine.

4,757,151
2-SUBSTITUTED-[2-SUBSTITUTED-AMINO]-N-ARYLALKYL-3-[INDOL-3-YL]

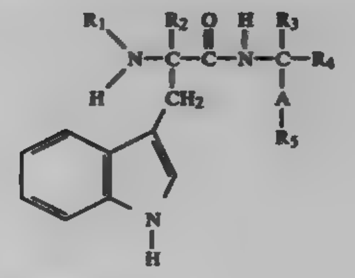
David C. Horwell, Foxton, England, assignor to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 798,[illegible], Nov. 14, 1985, abandoned. This application Sep. 30, 1986, Ser. No. 912,731

Int. Cl.⁴ C07D *209/04, 405/00, 207/12, 207/273, 207/36, 279/00, 413/00, 401/00*

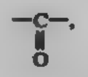
U.S. Cl. 548—469 27 Claims

1. A compound having structural formula 1:



1

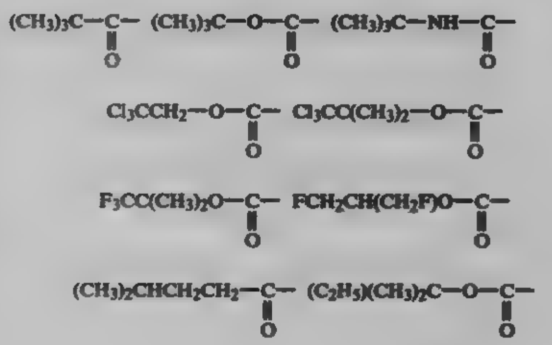
wherein A is —NH—,



$-\underset{\underset{\displaystyle O}{\|}}{C}-,$

or —$(CH_2)_n$, where n is an integer of from zero to six;

R_1 is an N-terminal blocking group selected from

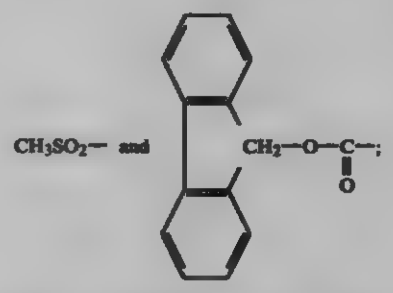


$(CH_3)_3C-\underset{\underset{\displaystyle O}{\|}}{C}-\quad (CH_3)_3C-O-\underset{\underset{\displaystyle O}{\|}}{C}-\quad (CH_3)_3C-NH-\underset{\underset{\displaystyle O}{\|}}{C}-$

$Cl_3CCH_2-O-\underset{\underset{\displaystyle O}{\|}}{C}-\quad Cl_3CC(CH_3)_2-O-\underset{\underset{\displaystyle O}{\|}}{C}-$

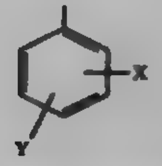
$F_3CC(CH_3)_2O-\underset{\underset{\displaystyle O}{\|}}{C}-\quad FCH_2CH(CH_2F)O-\underset{\underset{\displaystyle O}{\|}}{C}-$

$(CH_3)_2CHCH_2CH_2-\underset{\underset{\displaystyle O}{\|}}{C}-\quad (C_2H_5)(CH_3)_2C-O-\underset{\underset{\displaystyle O}{\|}}{C}-$



R_2 is straight or branched alkyl of from one to six carbon atoms, trifluoromethyl, —CH_2—CH═CH_2, —CH_2—C≡CH, —CH_2OR, —$(CH_2)_m COOR$, —$(CH_2)_m NR_6R_7$, —CH_2Ar or -CH_2OAr, where m is an integer of from one to six, R, R_6, and R_7 are selected from hydrogen, or straight or branched alkyl of from one to six carbon atoms, and

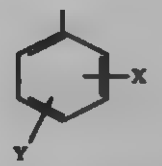
Ar is 2-, or 3-thienyl, 2-, 3-, or 4-pyridinyl, or



where X and Y are independently hydrogen, fluorine, chlorine, methyl, methoxyl, trifluoromethyl, or nitro, with the provisos that when X is nitro, Y is hydrogen, and

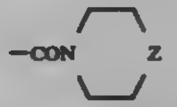
R_3 is hydrogen, straight or branched alkyl of from one to six carbon atoms, trifluoromethyl, —CH_2—CH═$_2$, CH≡—CH_2—C≡CH, —CH_2OR, —$(CH_2)_m COOR$, —$(CH_2)_m NR_6R_7$, —CH_2Ar or —CH_2OAr, where m is an integer of from one to six, R, R_6, and R_7 are selected from hydrogen, or straight or branched alkyl of from one to six carbon atoms, and

Ar is 2-, or 3-thienyl, 2-, 3-, or 4-pyridinyl, or



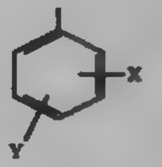
where X and Y are independently hydrogen, fluorine, chlorine, methyl, methoxyl, trifluoromethyl, or nitro, with the provisos that when X is nitro, Y is hydrogen, and

R_4 is hydrogen, —CH_2OH,



where Z is —CH_2—, NR, where R is as previously defined, oxygen, sulfur —$CONR_6R_7$, —$CH_2NR_6R_7$, or —COOR where R, R_6, and R_7 are as previously defined, and

R_5 is 2- or 3-thienyl, 2-, 3-, or 4-pyridinyl, 2- or 3-indanyl, cyclohexyl, 2- or 3-furanyl, 3- or 4-pyridazinyl, 2-imidazolyl, 2-benzimidazolyl, 2-tetrahydrobenzimidazolyl, 2-perimidyl, or



where X and Y are independently hydrogen, fluorine, chlorine, methyl, methoxyl, trifluoromethyl, or nitro, with the proviso that when X is nitro, Y is hydrogen, or a pharmaceutically acceptable salt thereof.

4,757,152

PROCESS FOR PRODUCING INDOLES

Makoto Imanari; Hiroshi Iwane; Katsuhumi Kuzira, and Takatoshi Seto, all of Ibaraki, Japan, assignors to Research Association for Utilization of Light Oil, Tokyo, Japan

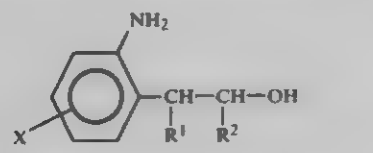
Filed Nov. 12, 1985, Ser. No. 796,739

Claims priority, application Japan, Nov. 12, 1984, 59-238030

Int. Cl.⁴ C07D *209/08*

U.S. Cl. 548—508 **8 Claims**

1. A process for producing an indole by catalytic reaction of a 2-(o-aminoaryl)ethanol, which comprises heating said 2-(o-aminoaryl)ethanol in a liquid phase in the presence of a catalyst containing a metal selected from the group consisting of a platinum-group metal, a platinum-group metal oxide, a platinum-group metal halide, nickel, surface-oxidized nickel and copper, in association with an alkali metal oxide, alkali metal carbonate, alkali metal sulfate, alkali metal halide or alkali metal phosphate; and wherein said 2-(o-aminoaryl)ethanol is selected from the group of compounds having the formula:



wherein X is hydrogen, a C_1–C_{12}-alkyl group, a C_1–C_{12}-alkoxy group, a halogen atom or a hydroxyl group; R^1 and R^2, which are the same or different, is each a substituent selected from the group consisting of hydrogen, a C_1–C_4-alkyl group, a C_5–C_6-cycloalkyl group and a C_6–C_{10}-aryl group, wherein when said catalyst contains a metal selected from the group consisting of nickel, surface-oxidized nickel and copper said catalyst metal and said alkali metal compound are each used in an amount of about 5×10^{-4} to 1 gram per gram of said 2-(o-aminoaryl)ethanol, and wherein when said catalyst contains a metal selected from the group consisting of a platinum-group metal, a platinum-group metal oxide and a platinum-group metal halide said catalyst metal is used in an amount of about 10^{-4} to 1 mole and said alkali metal compound is used in an amount of about 2×10^{-4} to 2 moles, each per mole of said 2-(o-aminoaryl)ethanol.

4,757,153

SULFIDE, SULFINYL AND SULFONE DIPEPTIDE AMIDES

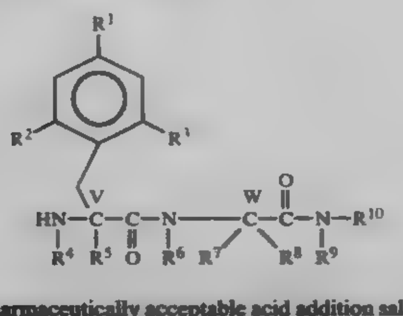
Donald W. Hansen, Jr., Chicago; Daniel R. Pilipauskas, Glenview, and Michael Clare, Skokie, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation-in-part of Ser. No. 829,309, Feb. 14, 1986, abandoned, which is a continuation-in-part of Ser. No. 765,885, Aug. 14, 1985, abandoned. This application Jul. 14, 1986, Ser. No. [illegible]

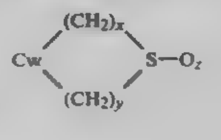
Int. Cl.⁴ C07D *337/00, 335/02, 333/36, 331/04;* **C07C** *103/00;* **C07K** *7/12*

U.S. Cl. 549—9 **28 Claims**

1. A compound of the formula:



and the pharmaceutically acceptable acid addition salts thereof wherein R^1 is hydrogen, lower alkyl, hydroxy, lower alkoxy, —$O(CH_2)_n$phenyl with the phenyl optionally substituted by halogen, —NO_2, —CN, —NH_2 or lower alkyl wherein n is 1 to 4; R^2 and R^3 represent lower alkyl, halogen, or lower alkoxy, or either one of R^2 or R^3 is hydrogen and the other lower alkyl, lower alkoxy or halogen; R^4, R^5, R^6, and R^9 may be the same or different and represent hydrogen, lower alkyl, cycloalkyl having 3 to 8 carbons, unsaturated lower alkyl, or $(CH_2)_m$cycloalkyl with the cycloalkyl having 3 to 8 carbons and m is 1 to 4; $_R10$ is hydrogen or —$(CH_2)_p$phenyl or with the phenyl optionally substituted with —NH_2, —OH, halogen, —NO_2, or lower alkyl or —$(CH_2)_p$ thienyl wherein p is 1 to 4; one of R^7 or R^8 is —$(CH_2)_f$—$S(O)_z$—$(CH_2)_q$—CH_3 where f is 1 to 3 and q is 0 to 3, z is 1, 1 or 2 and the other is hydrogen or lower alkyl, or R^7 and R^8 together with carbon w are



where

x and y are independently 1 to 3 and z is 0, 1 or 2;

V represents an asymmetric carbon that may be racemic or have the D or L configuration;

W represents an asymmetric carbon when R^7 and R^8 are not the same that may be racemic or have the D or L configuration.

4,757,154

PREPARATION OF SILANE AND AMINE ALANES

Everett M. Marlett, and Frederick W. Frey, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Nov. 4, 1986, Ser. No. 926,662

Int. Cl.⁴ C07F *5/06*

U.S. Cl. 556—176 **14 Claims**

1. Process for the preparation of silane and a tertiary amine alane, said process comprising reacting:

(a) an alkali metal aluminum tetrahydride having the formula $MAlH_4$, wherein M is an alkali metal selected from the class consisting of lithium, sodium and potassium,

(b) silicon tetrachloride, and

(c) a complexing tertiary amine, such that the molar proportion of (a) to (b) to (c) is about 4:1:4.

4,757,155

PROCESS FOR THE PREPARATION OF OPTICALLY ACTIVE 2-[4-(2′,4′-DIHALOPHENOXY)PHENOXY]PROPIONIC ACIDS

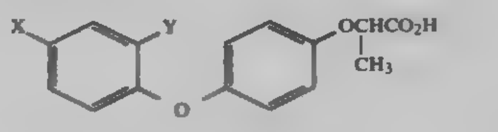
Jimmy J. Tai, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 22, 1986, Ser. No. 945,427

Int. Cl.⁴ C07B *57/00*

U.S. Cl. 562—401 **5 Claims**

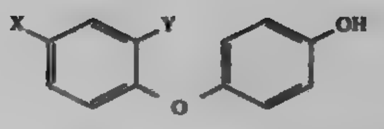
1. A process for the preparation of optically active 2-(4-phenoxyphenoxy)propionic acids of the formula



(I)

wherein X is fluorine, chlorine, bromine or iodine, and Y is hydrogen, fluorine, chlorine, bromine or iodine

of at least 75 percent enantiomeric excess of the desired optical isomer which comprises contacting 2-chloropropionic acid, a C_1–C_4 lower alkyl ester or an alkali metal salt thereof, having an optical purity greater than 90 percent of the opposite configuration, with from 2 to 10 molar equivalents of a 4-phenoxyphenol of the formula



(II)

wherein

X is fluorine, chlorine, bromine or iodine, and Y is hydrogen, fluorine, chlorine, bromine or iodine

in an aqueous base.

[illegible]

PROCESS FOR MAKING TERTIARY ALKYLPHOSPHINES

Norbert Weferling; Georg Elsner; Hans-Werner Stephan, and Friedrich-Karl Frorath, all of Hürth, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 14, 1987, Ser. No. 85,853

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1986, [illegible]

Int. Cl.⁴ C07F *9/50*

U.S. Cl. 568—8 **9 Claims**

1. In the process for making tertiary alkylphosphines of the general formula R_3P, in which R stands for identical or different, linear, unsubstituted alkyl groups having 3 to 20 carbon atoms, where a secondary butyl group may however stand for one of the alkyl groups, by reacting hydrogen phosphide PH_3 with an alkene or alkenes in stoichiometric proportions or in stoichiometric excess, at elevated temperature and under increased pressure in contact with a radical-donator, the improvement which comprises: effecting the reaction in contact with 2,2′-azobis-(2-methylbutyronitrile) as the radical-donator in the absence of an alien solvent.

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4,757,157

HOUSING FOR AN UNDERSEA REPEATER

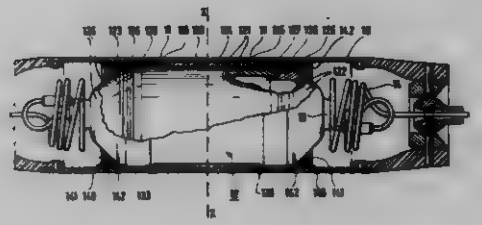
André Polet, Maurepas, France, assignor to Alcatel Cit, Paris, France

Filed Nov. 9, 1987, Ser. No. 118,708

Claims priority, application France, Nov. 14, 1986, 86 15873

Int. Cl.⁴ H05K *5/06*; H02G *15/14*

U.S. Cl. 174—50 6 Claims



1. An undersea repeater housing having a watertight metal box suitable for withstanding pressure and coated with an external sheath which is watertight and electrically insulating and which is placed in a tubular casing of fiber-resin composite material which is very strong in traction and which resists corrosion well, the housing further including a metal sleeve placed inside the tubular casing over the outer sheath of the metal box and provided with studs also made of metal which are distributed around its external periphery and which pass through the tubular casing via suitable openings and which come into contact with the surrounding sea water.

4,757,158

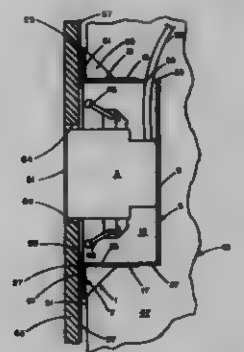
AIR-VAPOR BARRIER BOX

Stephen K. Lentz, 990 Mink Ln., Campbellsport, Wis. 53010

Filed Mar. 30, 1987, Ser. No. 31,797

Int. Cl.⁴ H02G *3/08*

U.S. Cl. 174—53 17 Claims



1. An air-vapor barrier box comprising:

a. a back wall;

b. four side walls joined to the back wall to create a five-sided enclosure, each side wall being manufactured with portions of different thicknesses, the side wall portions adjacent the back wall being thinner than the side wall portions remote from the back wall;

c. a flange joined to the free end of each side wall and extendingly outwardly therefrom and perpendicular thereto; and

d. at least one gusset extending between at least one flange and the associated side wall to thereby increase the rigidity of the flanges and thick side wall portions.

4,757,159

HIGH-VOLTAGE ELECTRIC CABLE TERMINATION

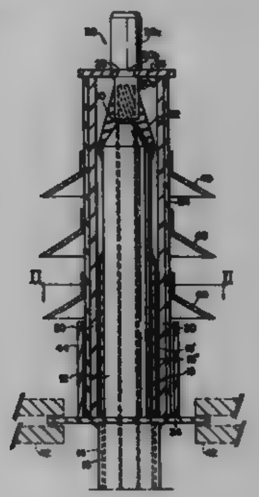
Pierre Dejean, Senlis, France, assignor to Filergie, France

Filed Sep. 9, 1987, Ser. No. 94,939

Claims priority, application France, Sep. 15, 1986, 86 12808

Int. Cl.⁴ H02G *15/064*

U.S. Cl. 174—73 R 11 Claims



1. High-voltage electric cable termination comprising a cable having a conductive central core terminating in a bared end, a semiconductive substance covering said core, an insulative envelope, and an equipotential screen and a protective outer sheath that are terminated at a distance from the end of the cable to bare a predetermined length of said insulative envelope, at least one layer of high permittivity material extending over at least part of the length of said bared insulative envelope, an outer protective tube of insulative material extending over substantially all of the length of the termination, a set of stiffener rods of an insulative composite material inside and tube and extending parallel to the axis of the termination and a filler material intimately filling the space between said rods and between said at least one high permittivity material layer and said tube.

4,757,160

CURRENT-CARRYING CONNECTION BETWEEN TWO ELONGATE CONDUCTORS OF AN ELECTRICAL INSTALLATION

Dieter Lorenz, and Willi Olsen, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 5, 1985, Ser. No. 772,912

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1984, 3433257

Int. Cl.⁴ H01R *11/00*

U.S. Cl. 174—94 S 18 Claims

1. In an electrical installation, particularly a high-voltage switching installation with a metal encapsulation and a compressed-gas insulating medium, a current-carrying connection comprising:

a first elongate hollow electrical conductor having a first end;

a second elongate hollow electrical conductor having a second end, and second end being juxtaposed to and facing said first end to form a butt joint between said first elongate hollow electrical conductor and said second elongate hollow electrical conductor;

a shield substantially in the form of a sleeve provided with a plurality of outside edges all being rounded, said sleeve circumferentially surrounding said first elongate hollow electrical conductor and said second elongate hollow

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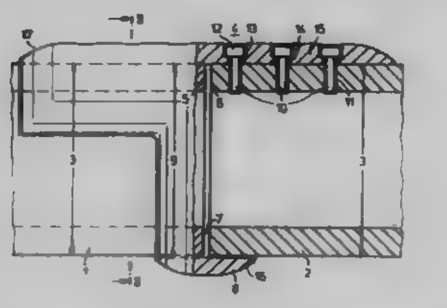
electrical conductor at said first end and said second end, respectively, said sleeve extending in a longitudinal direction defined by said first elongate hollow electrical conductor and said second elongate hollow electrical conductor at said butt joint so that said butt joint is completely covered by said sleeve, said sleeve being in electrical contact with said first elongate hollow electrical conductor and said second elongate hollow electrical conductor, said sleeve having a circumference and different longitudinal dimensions along said circumference, all circumferential outside edges being rounded in a longitudinal direction and all longitudinal outside edges being rounded in a circumferential direction; and

a plurality of radially oriented screws fastening said sleeve to said first elongate hollow electrical conductor and to said second elongate hollow electrical conductor, said screws having heads disposed within respective recesses provided in said sleeve, said screws being disposed within a region having a maximum circumferential extent of 180°.



4,757,161

COMPOSITE SUPERCONDUCTING CONDUCTOR WITH SEVERAL CONDUCTOR STRANDS AND A METHOD FOR MANUFACTURING THE SAME

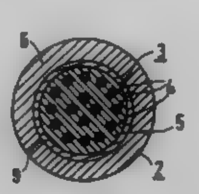
Manfred Wilhelm, Nürnberg, and Karl Wohlleben, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 28, 1986, Ser. No. 924,682

Claims priority, application Fed. Rep. of Germany, Nov. 12, 1985, [illegible]

Int. Cl.⁴ H01B *12/00*; H01L *39/24*

U.S. Cl. 174—126 S 9 Claims



1. A superconducting composite conductor comprising:

(a) a matrix of an alloy which is normally conductive at operating temperatures, said alloy consisting of copper and another alloying element;

(b) several superconducting filaments embedded in the matrix which consist of an intermetallic compound formed in a diffusion reaction between at least two elements;

(c) an aluminum jacket surrounding the matrix; and

(d) a barrier separating said jacket and matrix, said barrier consisting of a common boundary layer between the aluminum contained in the jacket and the copper contained in the matrix, said layer consisting of at least one intermetallic copper-aluminum compound.

4,757,162

RIGID ELECTRICAL INSULATOR INCLUDING A SLIGHTLY TEMPERED SODA-LIME GLASS DIELECTRIC

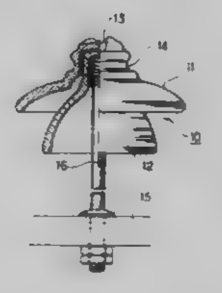
Denis Dumora, Vichy; Jean-Paul Parant, Dijon, and Laurent Pargamin, Vichy, all of France, assignors to Ceraver, Paris, France

Continuation of Ser. No. 725,712, Apr. 22, 1985, abandoned. This application Jul. 16, 1987, Ser. No. 75,250

Claims priority, application France, Apr. 20, 1984, 84 06301

Int. Cl.⁴ H01B *17/20, 17/14*

U.S. Cl. 174—195 3 Claims



1. A rigid insulator for supporting an overhead high voltage transmission line, said rigid insulator comprising at least one soda-lime glass dielectric having an average thickness of 10 to 15 mm, exhibiting a substantially parabolic stress curve, and wherein the maximum value of the surface compressive stresses falls within the range of 30 to 80 megapascals and the maximum value of the internal tensile stresses falls within the range for 15 to 40 MPa, at any point in the part, whereby said soda-lime glass dielectric is capable of withstanding certain temperature ranges of at least 90°C. and has an impact strength which is at least three times that of annealed glass such that in the event of impact of sufficient force to break off the dielectric, no fragmentation of the dielectric occurs.

4,757,163

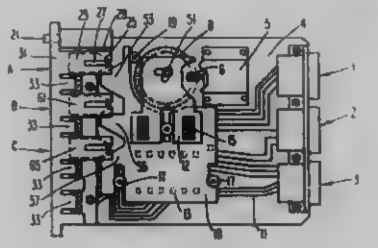
SWITCHED PATCH MODULE

Alexander Rabey, Hatboro, and Herbert J. Hampel, Feasterville, both of Pa., assignors to VIR, Inc., Southampton, Pa.

Filed Nov. 25, 1986, Ser. No. 934,901

Int. Cl.⁴ H01R *19/00*

U.S. Cl. 200—51.03 21 Claims



1. A switched patch module, the module comprising first and second sets of receptacles, the first set having at least three receptacles and the second set having at least three receptacles, both of said sets of receptacles being mounted on a printed circuit board, the printed circuit board having electrical connections which join the conductors of the first receptacle of said first set with the conductors of the first receptacle of said second set, and which join the conductors of the second receptacle of said first set with the conductors of the second receptacle of said second set, and which join the conductors of the third receptacle of said first set with the conductors of the third receptacle of said second set, the module including a single panel which is slidable along the printed circuit board, the panel having contact means for completing connections, on the printed circuit board, the panel having a first position, wherein the conductors of the first receptacles of the first and second sets are connected to the conductors of the third receptacles of the first and second sets, the panel having a second position, wherein the conductors of the second receptacles of the first and second sets are connected to the conductors of the third receptacles of the first and second sets, the panel also having a neutral third position, wherein the conductors of the first and second receptacles of the first and second sets are disconnected from the conductors of the third receptacles of the first and second sets, the panel being movable into its first and second positions by a motor, in response to the setting of a two-position switch, wherein the patch module also comprises a tab, slidably mounted within both the first, second, and third receptacles of said first set, the tab being slidable towards the panel in response to pressure from a plug inserted into the receptacle, wherein the panel is movable in a direction generally perpendicular to that of the tab, and wherein the panel includes a cam surface which abuts the tab, wherein movement of the tab, towards the panel, causes the panel to move in a direction generally perpendicular to that of the tab, the cam surface being such that the distance traveled by the panel is less than the distance traveled by the plug, and wherein insertion of a plug into that receptacle of said first set which has been selected by the two-position switch causes the panel to slide along the board so as to move to its neutral position, wherein the connection between the selected receptacle and the third receptacle of said second set is broken, and wherein insertion of a plug into the third receptacle of the first set causes the panel to move to the neutral position, and wherein the panel is spring biased such that the panel offers resistance to the insertion of a plug into any of the receptacles of the first set.

4,757,164

PUSHBUTTON SWITCH

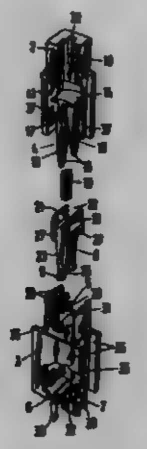
Karl-Heinz Bauer, and Edgar [illegible], both of Bad Neustadt/Saale, Fed. Rep. of Germany, assignors to Preh Elektrofeinmechanische Werke Jakob Preh Nachf. GmbH & Co., Bad Neustadt/Saale, Fed. Rep. of Germany

Continuation of Ser. No. [illegible], Mar. 29, 1985, abandoned. This application Apr. 24, 1987, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1984, [illegible]

Int. Cl.⁴ H01H *1/06, 5/04, 13/56*

U.S. Cl. 200—67 A 19 Claims



1. Pushbutton switch comprising:

a switch housing;

a pushbutton axially movable in a recess in said housing, said pushbutton movable from a rest position;

a switch plunger which is axially movable within the pushbutton and pivotable from an initial position angularly to the direction of said axial motion;

a contact assembly including two contacts, a central contact member defining a bearing and a contact bridge, which can be pivoted between said two contacts on said bearing in said central contact member, at least one of said contacts being formed by first electrical contact means;

a switch rocker controlling the motion of the contact bridge, mounted for pivoting between first and second positions within the switch housing and comprising at least one wedge-shaped facet for interaction with the switch plunger, such that pressure exerted on the switch plunger leads to a force on the switch rocker tending to cause it to pivot between the first and second positions;

a return spring exerting pressure between the switch plunger and the switch rocker;

characterized in that the contact bridge is engaged by the switch rocker, so that when the switch rocker is in at least one of said first and second positions, the contact bridge is urged against said electrical contact means by the return spring, so that in the rest position of the pushbutton, the switch plunger occupies a position angular to the direction of said axial motion and intermediate to said first and second positions, and in that the pivoting of the switch plunger is controlled by two means for constraint, wherein the first of said means for constraint operates as a restraint on the switch plunger during downward motion, and the second of said means for constraint operates as a restraint on the switch plunger during upward movement.

4,757,165

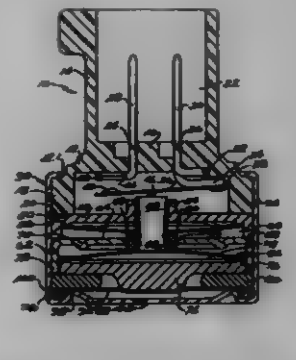
DUAL CONDITION RESPONSIVE ELECTRICAL SWITCH

Lee [illegible], Rehoboth; Benjamin A. Barber; Lawrence E. Cooper, both of Attleboro, all of Mass., and Carlton E. Sneed, E. Providence, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. [illegible], Dec. 23, 1986, abandoned. This application Oct. 20, 1987, Ser. No. [illegible]

Int. Cl.⁴ H01H *35/34*

U.S. Cl. 200—83 P 26 Claims



1. A fluid pressure switch device closed with increasing pressure at pressure levels between first and second selected pressure levels, the second pressure level being higher than the first pressure level, and opened with increasing pressure at pressures below the first pressure level and above the second pressure level comprising

a housing,

an electrical switch mounted in the housing, the switch including a movable spring contact arm normally biased out of engagement with a stationary contact,

first and second discs movable between convex and concave configurations and movably controlling the position of the movable contact arm,

the first disc having an upwardly concave surface configuration at pressures below said first pressure level with increasing pressure disposed in a first disc receiving chamber,

the second disc having an upwardly convex surface configu-

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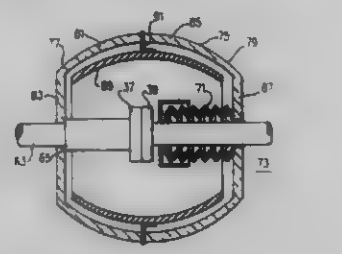
ration at pressures below said second, higher pressure level with increasing pressure disposed in a second disc receiving chamber aligned with and beneath the first disc,
a first motion transfer member slidably mounted in the housing and extending between the movable contact arm and the second disc through an aperature in the first disc,
a second motion transfer member slidably mounted in the housing and extending between the first and second discs,
a pressure converter having an annular disc receiving seat on one side and being adapted to slide toward and away from abutments in the second disc receiving chamber, the abutments being positioned radially inwardly relative to the annular disc receiving seat, the second disc being disposed on the disc receiving seat,
a flexible membrane in engagement with an opposite side of the pressure converter,
an orifice formed in the housing adapted to be placed in communication with a fluid pressure source and with the membrane,
whereby with increasing pressure the first disc will limit movement of the pressure converter in a direction toward the movable contact arm through the second motion transfer member and the second disc at pressures up to the first pressure level at which level the first disc will invert to its opposite dished configuration allowing the first motion transfer member to move the movable contact arm into engagement with the stationary contact until the pressure exceeds the second pressure level with the second disc inverting to its opposite dished configuration allowing the movable contact arm to move away from the stationary contact.

4,757,166
VACUUM INTERRUPTER WITH CERAMIC ENCLOSURE

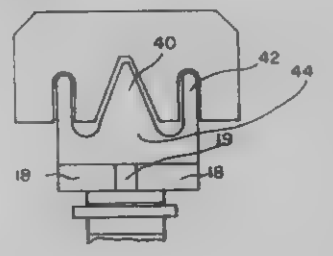
Paul G. Slade, Churchill Boro, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Jun. 15, 1987, Ser. No. 61,768
Int. Cl.⁴ H01H *33/66*
U.S. Cl. 200—144 B 1 Claim



1. A vacuum interrupter comprising:
an envelope forming an evacuated chamber;
a pair of separable electrical contacts within the envelope;
the envelope being an all-enclosing container and being composed of a ceramic material,
the envelope being comprised of two cup portions having integral side and end walls and having abutting end surfaces secured together in a vacuum-tight joint, the contacts being conducive to the production of metal vapor during opening of the contacts and in which a shielding device is disposed around the contacts to avoid metal vapor deposition on the envelope, and the contacts being supported on support conductors extending through the end walls of the envelope.

4,757,167
TRIDENT ARC HORN FOR CIRCUIT BREAKER

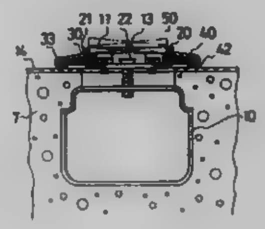
Aymen A. Mustandi; Kevin J. Green, both of Cedar Rapids, and Gary A. Volesky, Newhall, all of Iowa, assignors to Square D Company, Palatine, Ill.
Filed Oct. 24, 1986, Ser. No. 922,577
Int. Cl.⁴ H01H *9/30, 33/00*
U.S. Cl. 200—144 R 16 Claims



1. A circuit breaker comprising:
a movable contact;
a second contact;
a movable blade having a longitudinal axis, said movable contact being mounted on said movable blade and being movable between a closed position and an open position to open and close an electric circuit, said movable contact and said second contact being in contact with one another in the closed position, said movable contact and said second contact are a distance from one another in the open position;
an arc horn mounted juxtaposed said movable contact, said arc horn having a plurality of fingers approximately parallel to the longitudinal axis of said movable blade;
an arc stack positioned adjacent said second contact and said movable contact, said arc stack including a plurality of arc plates, each arc plate having a cutaway portion, whereinupon said movable blade moving between the open position and the closed position, said arc horn fingers pass through the cutaway portion of each arc plate; and
wherein each of said arc plates comprises a plurality of respective cutaway portions, whereupon said movable blade moving between open position and the closed position, each arc horn finger passes through a respective cutaway portion of each arc plate.

4,757,168
DECORATIVE IMPROVED SWITCHING APPARATUS HAVING A ROCKING ELEMENT

Shiori Fujiyoshi, Kanagawa, and Shigeru Matsui, Tokyo, both of Japan, assignors to Jimbo Electric Co., Ltd., Tokyo, Japan
Filed Jun. 6, 1986, Ser. No. 871,328
Claims priority, application Japan, Jul. 6, 1985, 60-149694; Jul. 6, 1985, 60-149695
Int. Cl.⁴ H01H *9/00*
U.S. Cl. 200—296 10 Claims

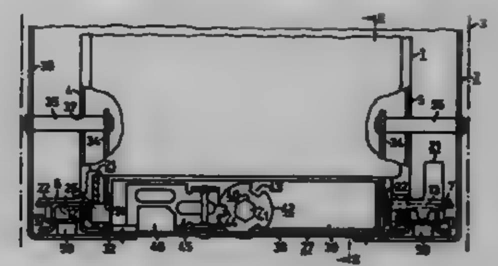


1. A switch device for operating a switch having an on and an off state, comprising:

a mounting frame for mounting a switch body, said frame being placed on an embedded box or hollow wall;
means for preventing the mounting frame from being deformed when attached to the embedded box or hollow wall, said preventing means comprising a reinforcing frame placed on a surface of a building-forming material and threadedly fixed to said mounting frame;
a plate attachable to the reinforcing frame;
a decorative frame fixed integrally with or separately from said reinforcing frame;
a support piece plate located inside the decorative frame and adjacent thereto; and
a decorative rocker element attached to the switch body and having an area larger than that of the switch body, said decorative rocker element being pivotable about the support piece so as to operate the switch.

4,757,169
ELECTRIC SWITCHGEAR HAVING GUIDING MEANS SERVING FOR POSITIONING WITHIN A SWITCHBOARD CELL

Peter Bolsen, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany
Filed Dec. 15, 1986, Ser. No. [illegible]
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1985, [illegible]
Int. Cl.⁴ [illegible]
U.S. Cl. 200—[illegible] B 6 Claims

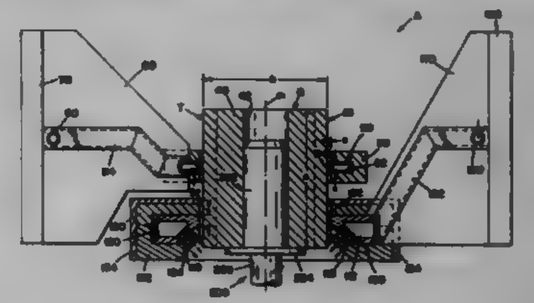


1. An electric switchgear movable within a switchboard cell comprising positioning drive means provided in the switchboard cell for moving the switchgear, means for the detachable coupling of the switchgear to the positioning drive means, the positioning drive means comprising a threaded spindle, the switchgear having side walls having base ears extending therefrom to which rail means are detachably fastened, each of said rail means being provided with sliding surfaces, said switchboard cell being provided with a floor, said sliding surfaces being provided for slidable movement on the floor of the switchboard cell, and each rail means comprising a coupling claw for coupling the switchgear to the positioning drive means.

4,757,170
METHOD AND APPARATUS FOR INDUCTION HEATING GEARS AND SIMILAR WORKPIECES

George M. Mucha, Parma Heights, Ohio; Donald E. Novorsky, Pleasant Ridge, and George D. Pfaffmann, Farmington, both of Mich., assignors to Tocco, Inc., Boaz, Ala.
Continuation-in-part of Ser. No. [illegible], Jun. 25, 1985, Pat. No. 4,675,488. This application Jan. 8, 1987, Ser. No. 1,624
Int. Cl.⁴ H05B *6/14*
U.S. Cl. 219—10.43 54 Claims

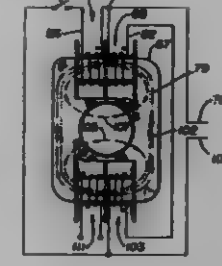
1. A method of hardening the radially protruding convoluted surfaces of a generally circuit workpiece adapted to rotate about a central axis generally concentric with said convoluted surfaces, said surfaces defining an inner or outer radial extreme circle by the tips of said convoluted surfaces, said method comprising the steps of:
a. providing first and second closely spaced, coaxially aligned induction heating inductors having circular surfaces generally matching said radial extreme circle;
b. energizing said first inductor with a first alternating frequency current of less than 50 KHz;
c. energizing said second inductor with a second alternating frequency current or more than about 100 KHz;
d. moving said workpiece along its central axis progressively



said simultaneously through said first and second inductors in a given direction from said first inductor to said second inductor and at a rate to simultaneously and progressively preheat said workpiece moving through said first inductor at a portion adjacent said radial extreme circle to a temperature below a quench hardening temperature, and finally heat said preheated workpiece portion progressively to a quench hardening temperature adjacent said surfaces only; and,
e. progressively quenching said surfaces immediately following said final heating of said surface.

4,757,171
CONTINUOUS TRANSFORMER AND MOTOR

Jeffrey E. Cornell, Memphis, Tenn., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Continuation-in-part of Ser. No. [illegible], May 7, 1986. This application Jun. 30, 1987, Ser. No. [illegible]
Int. Cl.⁴ [illegible]
U.S. Cl. [illegible] 10 Claims



1. A transmotor for providing an output voltage proportional to an input voltage and for providing a selectively driven rotatable shaft, said transmotor comprising, in combination:
(a) a magnetic flux conducting structure having first and second flux conducting paths therethrough;
(b) a first winding operatively coupled to the first flux conducting path of the flux conducting structure and continuously connected to a source of input voltage for inducing flux in the first flux conducting path of the magnetic flux conducting structure;
(c) a second winding operatively coupled to the second flux

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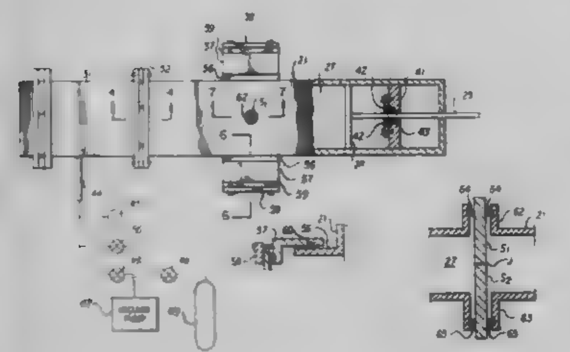
conducting path and selectively connectable to the source of input voltage to thereby induce flux therein;
(d) a third winding operatively coupled to receive flux from either the first or the second flux conducting path to produce an output voltage;
(e) a motor rotor mounted on the flux conducting structure for receiving flux conducted in the first and second flux conducting paths, said rotor constructed and arranged for rotation when the second winding is connected to a source of input voltage and for remaining stationary when the second winding is not connected to a source of input voltage; and
(f) a fourth winding
  (i) encircling that portion of the magnetic flux conducting structure encircled by the second winding,
  (ii) wound in a sense to prove magnetic flux of the same polarity as the second winding, and
  (iii) continuously connected to the input voltage.

4,757,172

METHOD AND APPARATUS FOR THE MICROWAVE JOINING OF NONOXIDE CERAMIC ITEMS

David E. Palaith, Washington, D.C., and E. Laurence Libelo, College Park, Md., assignors to QuesTech Inc., McLean, Va.
Filed Sep. 24, 1987, Ser. No. 100,743
Int. Cl.^{4} H05B 6/64
U.S. Cl. 219—10.55 M 62 Claims



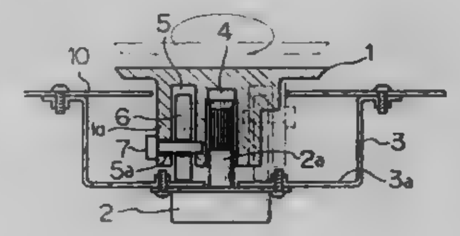
1. A method for joining together two items, comprising the steps of:
  a. creating a vacuum around the two items;
  b. radiating microwaves onto a joint being formed between the two items;
  c. applying compressive force simultaneously to the two items; and
  d. monitoring continuously the joint being formed between the two items.

4,757,173

TURNTABLE FOR USE IN A MICROWAVE OVEN

Jong K. Park, Kyungsangnam-Do, Rep. of Korea, assignor to Gold Star Co., Ltd., Seoul, Rep. of Korea
Filed May 28, 1987, Ser. No. 55,056
Int. Cl.^{4} H05B 6/78
U.S. Cl. 219—10.55 F 9 Claims

1. A turntable for use in a microwave oven which comprises:
a tray for supporting an object to be heated, said tray containing a stem portion,
an axial cavity disposed in said stem portion,
a motor shaft extending into said axial cavity for operative engagement with said stem portion,
motor means connected to said motor shaft for rotating said motor shaft and said tray and stem portion composite,
a roller cavity disposed in said stem portion lateral to said axial cavity, and

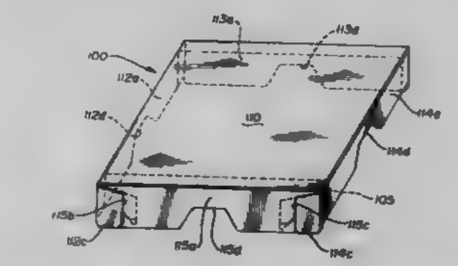


roller means eccentrically mounted in said roller cavity to support said stem portion whereby, upon the horizontal rotation of the stem portion and tray composite, the stem portion and tray also move in the vertical plane for subjecting the object to uniform heating in the microwave oven.

4,757,174

METHOD FOR MAKING SELECTIVELY METALLIZED MICROWAVE HEATING PACKAGES

Norman M. ScottRussell, St. Paul, Minn., and Robert L. Allen, Park Ridge, Ill., assignors to Waldorf Corporation, St. Paul, Minn.
Filed Jan. 29, 1987, Ser. No. 8,004
Int. Cl.^{4} H05B 6/80
U.S. Cl. 219—10.55 M 18 Claims

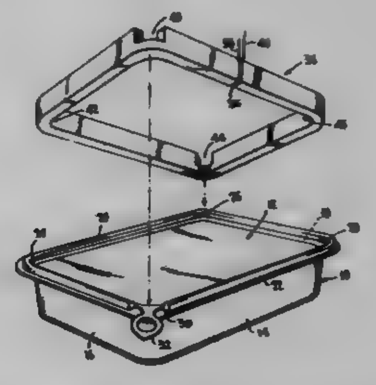


1. A method for forming package blanks incorporating selectively located microwave absorbing areas for heating one or more surfaces of a packaged product, comprising the steps of:
(a) providing an extended web of thin, microwave transparent film;
(b) transporting successive lengths of the film web past means for selectively depositing a thin lay er of microwave energy absorbing material on one side of said film web said layer being of sufficient thickness that when exposed to microwaves it will heat to temperatures capable of producing browning in food placed closely adjacent said layer, whereby microwave absorbing material is not deposited in those areas where heating to browning temperatures is not desired;
(c) laminating successive lengths of the resulting film web onto an extended web of dielectric packaging material with one adhesive in a manner to cause the selected areas of microwave absorbing material to be sandwiched between the film and the dielectric packaging material and to cause both the areas with deposited microwave absorbing material and those without such material to be held by said one adhesive in bonded relationship with said dielectric packaging material; and
(d) feeding successive lengths of the resulting laminated web through a cutting machine that cuts package blanks from the laminated web, such blanks including both areas incorporating microwave absorbing material and areas free from such material and having a covering of said film on one entire side of said blanks.

4,757,175

INDUCTION HEATING COIL

Glenn R. Maier, Linthicum, Md., and Donald J. Roth, Westport, Conn., assignors to Continental Can Company, Inc., Norwalk, Conn.
Filed Jan. 2, 1987, Ser. No. 76
Int. Cl.^{4} H05B [illegible]
U.S. Cl. 219—10.79 14 Claims

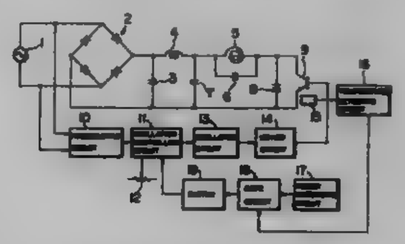


1. An induction heating coil, said coil being a single turn coil particularly configurated for inducing electrical energy into a metal foil barrier layer of a laminated container closure for effecting heat bonding of the closure to a container in a preselected seal pattern including at least one corner, said coil having an outline in accordance with said preselected seal pattern and having at least one corner defined by a corner bend, said coil being improved by reducing the cross section of said coil at said corner bend to increase inductance and thus the heating effect of said coil at said corner, said coil having a generally upstanding rectangular cross section and including sides and upper and lower edges, and the reduction in cross section being in the form of a notch opening through one of said edges.

4,757,176

CONTROL CIRCUIT FOR INDUCTION HEATING ELECTRIC COOKER

Toshio Suzuki, Kanagawa, and [illegible], Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Feb. 18, 1987, Ser. No. 15,982
Claims priority, application Japan, Feb. 19, 1986, 61-[illegible]
Int. Cl.^{4} H05B [illegible]
U.S. Cl. 219—10.77 16 Claims

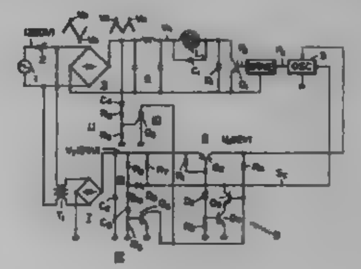


1. An output controlling device for controlling an electric cooker by controlling input power to the electric cooker, the electric cooker having a part in an output circuit changeable in temperature in response to changes in the magnitude of input power to the electric cooker, comprising:
a temperature detecting means for detecting the temperature of said part in said output circuit of said electric cooker and having a detection output for providing a temperature detection signal;
a power increasing means for increasing input power to said electric cooker above a predetermined normal value to cause faster heating by said electric cooker and an increase in the temperature of said part; and
a power controlling means responsive to said detection signal of said temperature detecting means for controlling input power to return to said predetermined normal value from an increased input power level before the temperature of said part in said output circuit that is rising as a result of said power increasing means reaches a predetermined maximum allowable temperature.

4,757,177

HIGH-FREQUENCY INDUCTION HEATING SYSTEM WITH CIRCUIT PROTECTIVE FEATURE

Toshio Suzuki, and Nobuo Kobayashi, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 8, 1986, Ser. No. [illegible]
Claims priority, application Japan, Sep. 20, 1985, [illegible]
Int. Cl.^{4} H05B [illegible]
U.S. Cl. 219—10.77 31 Claims



18. A high-frequency induction heating system comprising:
an AC power source means for supplying AC power;
a first DC power source for converting AC power from said AC power source into first DC power;
a second DC power source for converting AC power from said AC power source into second DC power;
an induction means, receiving said first DC power supply, for generating a magnetic flux therearound;
a switching means, associated with said induction means, for periodically transmitting and interrupting said first DC power to said induction means at a high frequency so that said mangetic flux oscillates;
a drive means, associated with said switching means and receiving said second DC power from said second DC power source, for supplying a driving signal to said switching circuit by which the latter is ordered to periodically transmit and interrupt said first DC power; and
means for monitoring AC power supplied from said second AC power source and detecting preselected disabling conditions in said AC power supply and in such cases generating a disabling signal to disable said switching means, said AC power supply monitoring means comprising a first detector for detecting when noise with an excessively high voltage is superimposed on the AC power and in such cases producing a first detector signal, a second detector for detecting temporary drops in supply voltage and in such cases producing a second detector signal, and a disabling signal generator for producing said disabling signal in response to one of said first and second detector signals.

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4,757,178
BASE FOR SETTING MATERIALS TO BE PROCESSED BY NC WIRE ELECTRO-SPARK PROCESSING MACHINE

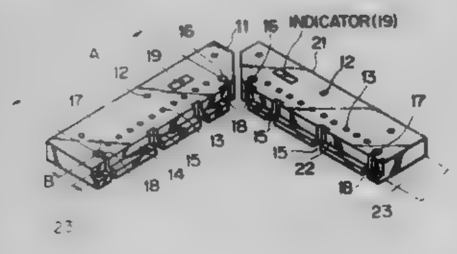
Satoshi Iwasaki; Hazime Sasaki, and Yorimichi Hirako, all of Tokyo, Japan, assignors to Japan Automatic Machine Co., Ltd., Tokyo, Japan

Filed Apr. 16, 1987, Ser. No. 39,103

Claims priority, application Japan, Apr. 16, 1986, 61-[illegible]

Int. Cl.⁴ B23H *7/02;* B23Q *3/06*

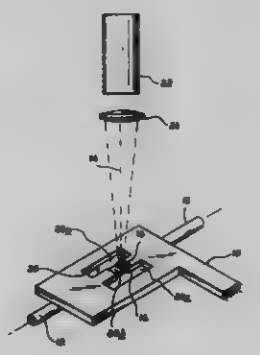
U.S. Cl. 219—69 R 1 Claim



1. A base for determining the X and Y coordinates of a workpiece aligned against said base, which workpiece is to be processed in an X-Y plane by an NC wire electro-spark processing machine having a movable table upon which said base is supported, comprising:

a first reference base mounted on said movable table, said [illegible] first reference face adapted to [illegible] workpiece, said first refer- [illegible]

second elements, the improvement comprising: forming said first element at said location with an open area that is adjacent a portion of the periphery of the molten pool of metal whereby



the molten pool is unconstrained in said portion of its periphery and free to shrink from this portion without creating peripheral stresses followed by cracking as the molten pool of metal solidifies.

4,757,180
TRANSPORT DEVICE FOR A WELDING WIRE, PARTICULARLY FOR ROBOTS

Franz Kainz, Augsburg; Karel Mazac, Friedberg; Helmut Obermeier, Königsbrunn; Peter Rippl, Augsburg; Josef Stadler, Friedberg/Wulfertshausen, and Ernst Zimmer, Friedberg, all [illegible]

4,757,181
WEIGHING APPARATUS

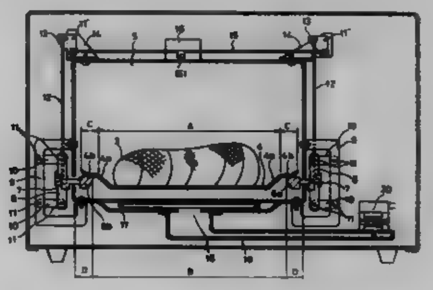
Kazuho Sakamoto, Soraku; Takao Shitaya, Yamatokoriyama, and Makoto Mihara, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jul. 14, 1986, Ser. No. [illegible]

Claims priority, application Japan, Jul. 15, 1985, [illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 219—393 22 Claims



5. An oven comprising:

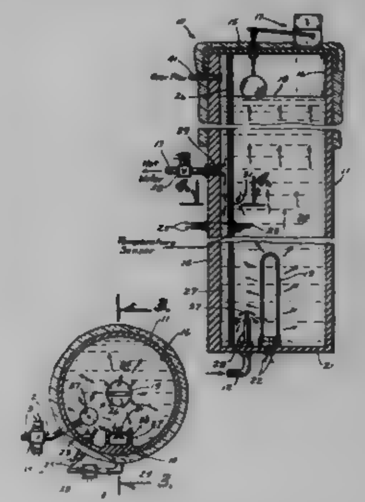
a heating cavity for containing a heating object therein;

heater means for applying energy to said heating object to thereby heat said object;

a tray for holding said heating object thereon;

a pair of beam shaped holders for holding said tray, to receive a load induced by and responding to a weight of said [illegible]

chamber includes a lengthwise disposed U-shaped embossment having arms and integrally formed with the



inner surface of the cylindrical housing, and together with said panel defining said outlet subchamber

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PORTABLE CORDL[illegible]
APPLIANCE [illegible]

[illegible] Karev, Steinheeb [illegible]

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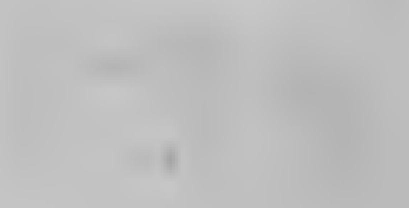
[illegible], Kanagawa, Japan [illegible]
[illegible]gawa, Japan
(Ser. No. 65[illegible],028, Oct. 4, 1986,



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[illegible] Pierre Louvet, Palaiseau, all of France [illegible]

[illegible] both of Conn., assignors to Cerbanus AG, Switzerland [illegible]

[illegible]

[illegible], deceased, late of B[illegible], administratrix), assign[illegible]

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r, Fed. Rep. of Germany

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…onouchi, Yoshihito Yoshizawa, both of Sa…
…oyano, Kanagawa, all of Japan, assignors to …
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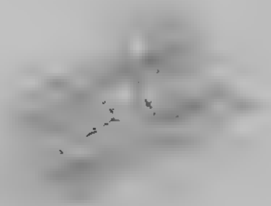

, and David J. Critter, F

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4,757,220

LECTRON MULTIPLIER

th C. Schmidt, Wilbraham, and James L. Knox,
ngfield, both of Mass., assignors to K and M Electr
West Springfield, Mass.

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te Foxboro Company, Foxboro, Mass.

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...XENON BUFFER GAS

...Lutan, and Peter D. Johnson, both of Schenectady, ...assignors to General Electric Company, Schenectady, ...

...tion of Ser. No. 676,367, Nov. 29, 1984, abando... in continuation Jul. 29, 1986, Ser. No. [illegible]

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...sson, Toby, and Nils Danielsson, Motala... assignors to Affarsverket FFV, Eskilstuna, S... PCT... § 371 Date May 1, 1986...

METHOD AND APPARATUS FOR D... ABSOLUTE POSITION

...ichiro Iwamoto; Hiroyuki Tsuboi, both of Za... Hakata, and Kimio Suzuki, both of Numazu, all of Japan... to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan... Filed Jun. 3, 1986, Ser. No. 87...

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Carpentier, Moirans, France, assignor to Cegedur
le Transformation de l'Aluminium Pechiney, Paris

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orp., Pittsburgh, Pa.

d Kazutoshi Higuchi, Ka
chi, Ltd., Tokyo, Japan

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...signors to American Telephone and Tel...

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...jamin F. Peacher, Willingboro, N.J., assignor to The U...

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ales; Hans W. Bruessel
o, Malibu; Richard C. Lind
nden, Calabasas; Thomas R.
ockwell, Santa Monica, and
ake Village, all of Cal
pany, Los Angeles, Cal

zaka; Yuichi Ninomiya, Tokyo; Yosh
Yoshinori Izumi, Tokyo, and Seiichi
Japan, assignors to NEC Home Electron
Nippon Hoso Kyokai, Tokyo, both of, Japan
d Jul. 1, 1986, Ser. No. [illegible]

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H. Fujiwara; Takashi Kimura; Taira Matsunaga,

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Tokyo, and Shoki Satoh, Kawasaki, both
to Harada Kogyo Kabushiki Kaisha, Tok

Sep. 11, 1986, Ser. No. 906,757

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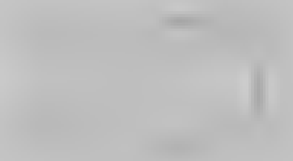

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[illegible] Apr. 4, 1986, Ser. No. 848,741

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LECTRIC [illegible]
and Shigeo Ogawa, both of Tokyo,
Corporation, Tokyo, Japan
ed Jul. 16, 1986, Ser. No. [illegible]

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ern, both of Fed. Rep. of German
H. Elektromotorenfabrik, M

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o, Conn; Richard A. Dowe, Plainvi
ocorney, Terryville, all of Conn., assi
ompany, New York, N.Y
2,589, Jul. 7, 1986. The
187 Ser. No. 79,55

ECTRICAL FUSELINKS

cell Brown, Frome, and John D. Flindall, Rott
n of England, assignors to Dubilier PLC, Ess

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[illegible] of Ser. No. 496,068, May 20, 1983, abandoned [illegible] application Mar. 23, 1987, Ser. No. 29,[illegible]

[illegible]

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[illegible]SPLAY APPARATUS

[illegible] Hatakeyama, Kokubunji; Hiromichi [illegible] Tokorozawa, and Masaaki Fujinawa, Tokyo, all of [illegible] assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 16, 1986, Ser. No. 919,[illegible]

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Jr., both of Schenectady, all of N.Y., assignor

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nald J. Dowater, Romsey; Michael I. Davis, Winches

Robert W. E. Farr, and Colin V. Powell, both of Eastleigh, al

of United Kingdom, assignors to International Business Ma

Corporation, Armonk, N.Y

Jun. 24, 1985

VOL
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akamura, and Masahiro Yoshimura, both of Nara
assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Sep. 11, 1984, Ser. No. 649,48
Priority, Japan, Sep. 16, 1

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Sato, Kawato, all of Japan, assignors

Matsubara; Yoshito Kato, and Toshio Hashimoto
Japan, assignors to Toyota Jidosha Kabushiki
Aichi, Japan
Continuation of Ser. No. 650,9
which is a continuation-in-part of

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Pau; Marc Perrot, Randaberg, and Ch
all of France, assignors to Societe National
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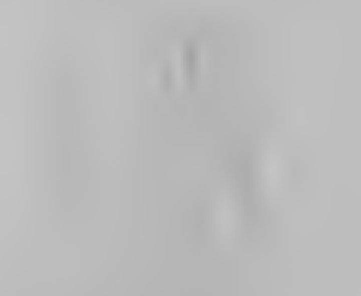
May 15, 1986, Ser. No.



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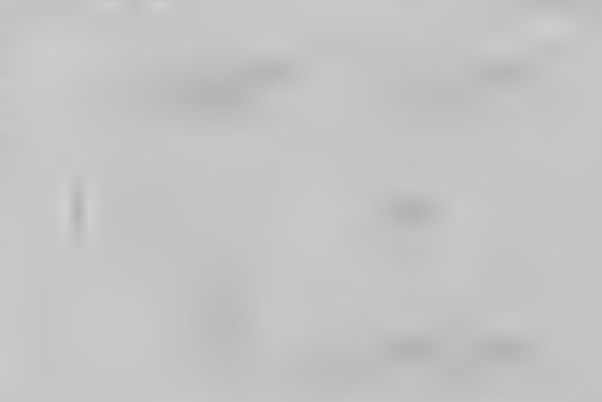

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Japan, assignors to Nippon Kog…

Filed Mar. 23, 1987, S…

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…tors: Yasuhisa Sato; Kouji Oiz…

…signors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 21, 1986, Ser. No. 820,62…

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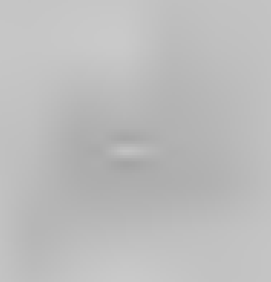

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Uemura, Nara; Keizo Fukunaga, and Ta

th of Yamatokoriyama, all of Japan, assi

Filed Dec. 23, 198

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, and Kazuo Maeyama, Nara, all of Japan
n Kabushiki Kaisha, Osaka, Japan

Iwasaki, Toyokawa; Kesaaki Kitazawa, Mishima;

Takahashi, Mishima, all of Japan, assig
ra Kabushiki Kaisha, Osaka, Nitto K
and Hodzka Kogyo Co., Ltd., Shizuoi
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Eastport; Robert F. Burkholz

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[illegible] aneta, Tokyo; Noboru Nomura, Kyoto; Atsush[illegible]
Osaka, and Shotaro Yoshida, Sendai, all of Japan, assi[illegible]
[illegible] Electrical Industrial Co., Ltd., Osaka, Ja[illegible]
Filed Apr. 28, 1987
Claims priority, [illegible]

[illegible], Yokohama, all of J[illegible]
[illegible] Kasuka, Tokyo, Japan
Filed Oct. 28, 19[illegible]

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H. Brodsky, Mount Kisco,

, Princeton, N.J.

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Nobuhiro Gemma, Y
Hiroyuki Sasabe, Tokyo
abushiki Kaisha Toshiba, Kawa
ed Nov. 5, 1985, Ser. No. 795,

ips Corporation, New York, N.Y.
ion of Ser. No. 573,441, Jan. 24, 1984, abandone
May 6, 1987, Ser. No. 46,42

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...so, and Shunji Emori.

CONTACT

D. Pettit, Mahopac; Richard F. Rutz, Cold Spr...
M. Woodall, Bedford Hills, all of N.Y., assig...
...national Business Machines Corporation, Armonk

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Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 19, 1986, Ser. No. 830,...
...lication Japan, Feb. 22
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[illegible] Kamakura; Shintaro Nanagaki, Fujisawa, [illegible] Ichimura; Takashi Kuriyama, both of Tokyo, and [illegible] Asakura, Yokohama, all of Japan, assig[illegible]

Filed Jun. 17, 1986, Ser. No. [illegible]

[illegible] IMAGE PICKUP DEVICE [illegible] PARALLEL TO SCANNING [illegible]

Hiroshi Ichimura; Takashi Kuriyama, both of [illegible] Asakura, Yokohama, and Hiroki Kitamura, [illegible]

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Kanagawa, Japan, assignors to Canon Kabushiki

Filed Aug. 8, 1986, Ser. No. 894,614

rke Mehrgardt, March; Heinrich Pfeifer, Denzlin
Thomas Fischer, Umkirch, and Peter M. Flamm, Freiburg
of Fed. Rep. of Germany, assignors to Deutsche ITT I
tries GmbH, Freiburg, Fed. Rep. of Germany

Filed Jul. 30, 1985, Ser. No. 760,09

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[illegible], and Yasutoshi Matsuo, Yokohama,

[illegible]

Wayne E. Dukla, Huntington Beach, and Scott M. Golong, Costa Mesa, both of Calif., assignors to [illegible] Costa Mesa, Calif.

[illegible] of Ser. No. 341,291, Jan. 25, 1982, abandoned [illegible] application Oct. 2, 1985, Ser. No. [illegible]

[illegible]

of [illegible], Japan, assignors to Hitachi, Ltd., Tokyo

Filed Oct. 28, 1985, Ser. No. 792,271

[illegible], application Japan, Oct. 31, 19[illegible]

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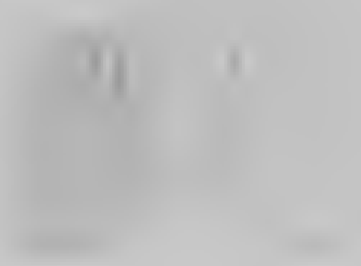

[illegible] Nobuo Oikawa, [illegible] [illegible] Limited, Sapporo, Japan [illegible]

NG DEVICE [illegible]

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…les and said planar upper end surfaces o…
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…p surface of said upper shell of said cassett…
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Ltd, assignors to Rodime PLC, Fife, S

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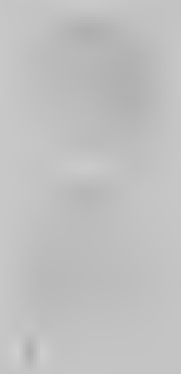

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means coupled to said power s
and simultaneously altering th
rrent voltage applied to said
t a predetermined rate, such that
ch of said wire conductors is essentially 180
phase with respect to the voltage applied to

ALLY BALANCED IONIZATION BLOW

Steward, Langhorne; Robert H. Dunphy, Jr., and
hael R. Bethier, both of Holland, all of Pa., assignors
Voyager Technologies, Inc., Langhorne, Pa.

IS ELECTRONIC COMPO

ELECTRIC DOUBLE LAYER CAPACITOR

akeshi Morimoto; Kazuya Hiratsuka; Yasuhiro Sanada
Hiroshi Aruga, all of Yokohama, Japan, assignors to
Glass Company Ltd., Tokyo and Elna Company
Fujisawa, both of, Japan

Filed Sep. 21, 1987

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APPARATUS

[illegible] Kuwabata, and Yoshio Yamamoto, both of Hyogo, Japan, [illegible] Mitsubishi Denki Kabushiki Kaisha, Tokyo,

[illegible] ed Apr. 21, 1987, Ser. N [illegible]
[illegible] priority, application Japan, Ap [illegible]

Continued [illegible]
[illegible]

APPARATUS

[illegible] Ueda, Hitachi; Mitsuyuki Homba, Katsuta; Takaie Ando, Ibaraki; Kazuhiko Sasaki, Katsuta; Kazuo Honda, Ohtsuchi, and Hideaki Takahashi, Katsuta, all of Japan, [illegible] to Hitachi, Ltd., Tokyo, Japan

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[illegible]RENT SYSTEM DISPLAYS BY MA[illegible] [illegible]ROESSOR AND COPROCESSOR

[illegible] A. Buckland, Austin; John W. Irwin, Georgetown, a[illegible] Jack E. Reeder, Round Rock, all of Tex., assignors to Interna[illegible] tional Business Machines Corporation, Armonk, N.Y.
[illegible] of Ser. No. 70[illegible]
this application Jun. 2[illegible]

[illegible]EMORY BUS TO TRANSFER [illegible] [illegible]SON-FAULTY PROCESSOR TO [illegible]

[illegible]oronobu Sakata, Tokyo, Japan, assig[illegible] Tokyo, Japan
Filed Jun. 16, 1986

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, Calif.
uation of Ser. No. 68, 602, Jul. 23, 1986, abandoning
is a continuation of Ser. No. 555,957, Nov. 28, 19

iled Oct. 27, 1986

ts, assignors to Diesel Kiki Co., Ltd., Tokyo, Japa
Filed Nov. 20, 1985, Ser. No. 799,77

SYSTEM FOR AU
NG A PRECEDING V
okosuka, Japan, assign

ar. 20, 1986, Ser. No.
application Japan, Jan

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[illegible] Scott, Edinburgh, and William McFarlane, Glasgow, [illegible] of Scotland, assignors to Hewlett-Packard Company [illegible]

Filed May 2, 1986, Ser. No. 859 [illegible]

[illegible] pulses by me[illegible]

[illegible] Masao Fujiwara, and Yoshio [illegible] all of Japan, assignors [illegible] Mitsubishi Limited, Tokyo and Mitsubishi [illegible] both of, Japan

Filed Aug. 16, 1985, Ser. No. 766,[illegible]

[illegible] said construction mach[illegible] said construction machi[illegible]

[illegible] other operation [illegible]

[illegible] construction machine, [illegible] mounted on said co[illegible] [illegible]ng speed sens[illegible] engine speed se[illegible]

[illegible] continued. This applica[illegible] Int. Cl.[illegible]

[illegible] all of Kanagawa, and Satoshi Araki, Chiba [illegible] assignors to Nissan Motor Company, Limited, [illegible]

Filed Mar. 5, 1986, Ser. No. 836,624

[illegible] application Japan, Mar. 8, 1985

Int. Cl.[illegible] G05F 15/[illegible]

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…to, Tokyo, Japan

…O POINT ADJUSTING ROBOT CONTROL METHOD

…smobu Takemoto, Oyama, and Kenzo Takeichi, Tochigi, both
…f Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 7, 1986, Ser. No. 894,…
…riority, application Japan, Aug. 7, 198…
…nt. Cl.⁴ G05…

…D ROBOT AR…
…ELECTIONS
…seph W. Schnelle, both…
…nnati Milacron Inc., Cin…
… 1986, Ser. No. 868,…

…RUCTURE
…, Rudi Grimm, St…
…d Elisabeth Ortz, Graben-Neudorf, all of
…ermany, assignors to Dr…
…, Fed. Rep. of Germany
Filed Jan. 3, 1985, Se…
…rmany priority, application Fed…
…

4,757,4…
…IONS NETWORK
…QUALIZED ACCESS DELAYS
…Elmhurst, and Semir Sirazi, Chicago, both…

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Franz, Coral Springs, Fla.; Hobart L.
Boca Raton, Fla.; Peter Langer, Coral Springs, Fla
enneth M. Nicholson, Boca Raton, Fla., assign
ational Business Machines Corp., Armonk, N.Y.

having a diag
tic signals rep

Werner Zimmermann, Pirmasens, and Karl-Heinz Hauser, Bruckmühl, both of Fed. Rep. of Germany, assignors to Messerschmitt-Bölkow-Blohm GmbH, Mun

ULATOR FOR SELF
R INTERPOLATION
F DIGITAL DATA WO
Hakoopian, Lake Grov
both of N.Y.,

; Akira Mori

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IMATING THE SQUARE R
IGITAL SAMPLES

uater B. Dieterich, South Brunswick Township, Middlesex
County, N.J., and Todd J. Christopher, Indianapolis, Ind.,
assignors to RCA Licensing Corporation, Princeton, N.J.
5, 1986, Ser. No. 863,431

tion means coupled to said generator means,
mparator means for comparing two digital signals,
comparator means coupled to said first and second en
cryption means for receiving said encryped signals, said
comparator means coupled to said memory for enabling
access to said memory as a function of said comparison,
and first encryption means receiving said random digital

READ-ONLY MEMORY

Santa Cruz; Alan C. Folmsbee;
both of Santa Clara, and David A. Shrigley, San Jose,
all of Calif., assignors to Intel Corporation, Santa Clara, Calif.
of Ser. No. 421,513, Sep. 22, 1982, abandoned. This
application Apr. 21, 1987, Ser. No. 40,360

cryption means for pr
yption for digital signals

ESSING A RANDOM A
DELAY LINE, AND SIG
ESSING DEVICE INCLUDING SUCH A
LINE

A. M. Ongk, Eindhoven, Netherlands, assig
Philips Corporation, New York, N.Y.
Filed Feb. 3, 1986, Ser. No. 825,178

an I/O subsy

ncrement register for storing a
accumulator for incrementing
memory with the addr
ontiguous memory zone

means furthe

Kenneth E. Bruce, Nashua, N.H.; Thomas O. H
Mass., and Gary J. Goss, Acton, Mass., assign
1984

nsuke Fukuo, Monsey, N.Y., and Shoan Ko

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1092
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[illegible] t upon each re [illegible]

[illegible] so material per revolu [illegible]

SYSTEM

[illegible]

l surface charg [illegible]

[illegible] ably different from said first degree of rotation, said degree of rotation corresponding to a recorded infor- on bit of said digital data at one binary logic state and second degree of rotation corresponding to a re- rmation bit of said digital data at the other state

mask positioned substantially in said focal plane third lens means and in juxtap [illegible] m between said medium and said [illegible] mask being substantially opaque to said writing and read ng light beams with a plurality of substantially transpar- ent apertures, said apertures defining the extent of said ns of said medium with said charged and uncharged les, each said aperture having a size to admit suffi- energy when exposed to said writing light beam for letermined time period to exceed a sensitivity thresh- alue of said medium and charge said particles in the esponding region of said medium to produce charged particles, said apertures being arranged in a ma [illegible] a plurality of rows and columns of said ape [illegible] rows being aligned along said first axis a [illegible] d second axis,

[illegible] l to be exposed to said read [illegible] and said medium, and respo [illegible] reading light beam thereon a [illegible]

[illegible] passing through said mask aperture [illegible] said medium being oriented so that [illegible]

[illegible] s and phase detector means ns for receiving said indicator signal from neans and comparing sa [illegible] ed threshold level, and for generating a read ignal containing the stored digi [illegible] d medium.

generating said first control sign [illegible]

[illegible] light beam for [illegible]

4,757,473

MEMORY CIRCUIT

Kyoichi Kurihara, Hadano; Hiroaki Aotsu, Yokohama; To- shihiko Ogura, Ebina; Koichi Kimura, Yokohama; Tadasa Ikeda, and Hiromichi Enomoto, both of Hadano, all of Japan; assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 21, 1986, Ser. No [illegible]

[illegible]

SEMICONDUCTOR MEMORY DEVICE [illegible] REDUNDANCY CIRCUIT PORTIO[illegible]

[illegible] Fukushi, Yokohama, and Yasuhiko Maki, Ka[illegible] Japan, assignors to Fujitsu Limited, Kawasak[illegible]

Filed Jan. 21, 1987, Ser. No. 11,368

priority, application Japan, Jan. 28, 19[illegible]

[illegible]

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[illegible]

LING CIRCUIT I
DYNAMIC RAM
ima; Masaki Kumanoya; Hiroshi Miyatake
r; Katsumi Dosaka, and Tsutomu Yoshihara, all
to, assignors to Mitsubishi Denki Kabushi
, Japan

[illegible]

y word line controllers, each having

[illegible]

umio Baba, both of Ka

led Jun. 5, 1987, Ser. No
application Japan, Jun

[illegible]

om said row address de
t coupled to said n bit li

[illegible]

MEMO

[illegible]

n-Pierre H.R.M. Masson, Corebes, I
witzer, and Robert A. Lester, both of Hou

[illegible]

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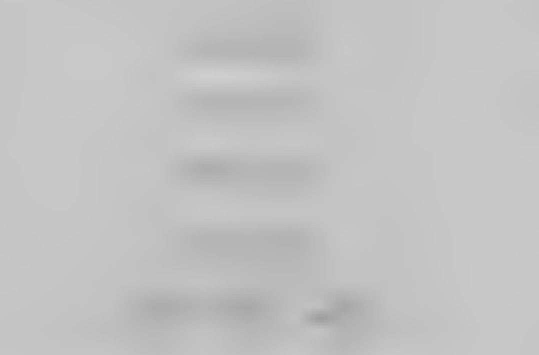
tance between a transmitter and
eak amplitude of the casing signa
er to the first receiver,
ak amplitude of the casing signa
er to the second receiver,
peak amplitude of the casing signal from
nsmitter to the first receiver, an

...ible, e



to the earth, comprising the steps of

METHOD AND SYSTEM FOR DETECTING WATER DEPTH AND PILOTING VESSELS

Edgar H. Orr, Cumming, and Paul G. Steffes, Norcross, both of
assignors to Sea Scout Industries, Inc., Cumming, Ga.
Filed Oct. 1, 1984, Ser. No. 656,190
Int. Cl.⁴ G01S 15/02, 15/88, 15/80

determined from

AND SYSTEM

Augustus H. Fiske, Jr., West Redding, Conn., assignor to Bolt
Technology Corporation, Four Duke Place, Norwalk, Conn
Continuation of Ser. No. 475,457, Mar. 15, 1983, abandoned
This application May 23, 1986, Ser. No. 868,199
Int. Cl.⁴ G01V 1/04, 1/38; H04R 1/02

The method of controlling a plurality of s

control station

to each of said local control statio
extending a communications bus line along sa
from said master control station,
coupling each of said submerged local con
said communications bus line thereby establ
munication link between said master contr
local control stations,
transmitting firing command signals from said mast
trol station to said submerged local control statio
argeable capacitance at sa
ons in response to a fir

ANALOG CLOCK

Yukihiro Nagahori, Saitama, and Hikoshi Izumi, Hanyu, both of
Japan, assignors to Jeco Company Limited, Saitama, Japan
Continuation of Ser. No. 888,036, Jul. 18, 1986, abandoned. This
application Nov. 16, 1987, Ser. No. 122,573
Claims priority, application Japan,
Int. Cl.⁴ G04B 19/04; G

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r a numerical value of five, and

third panel including three rows of figures in which.

he first row contains an inverted V symbol to denote

second row contains four dots with each dot denot-

g a numerical value of one, and

third row contains a single horizontal bar denoting a

merical value of five, whereby said second and third

els are capable of together denoting seconds from

o to fifty nine,

trical power means for activating said illuminatable

ck timing mechanism connected to and powered by

power means, and

electric signal generator connected to and generating signals in response to said clock timing mechanism, said generator also being connected to said power source and said illuminatable means for selectively lighting said illu-

atable means and thereby said symbols or

ls to represent a given time

4,757,485

OSITE WRIST WATC

an, Hong Kong, Hong Kong, a

Co., Ltd., Hong Kong

iled Mar. 11, 1987, Ser. No

ting structure for securing said case body thereon

to removably mounted to said case body mounting

said case body mounting structure comprising a

rality of at least three segments each being disposed radially

m the outer circumferential portion of said case body and

ving means provided thereon for releasable engagement

th adjacent segments, said plurality of segments being ar-

ged in radial a

said case body, said strap comprising a plurality of links e

having coupling means provided thereon adapted to removably couple to one another or to a strap receiving segment of said case body mounting structure by means of snap-fit actu

4,757,486

WATCH CASE AND BRACELET ASSEMBL

SOLDERED LOOK

Jack Wollman, Manhasset, N.Y., assignor to Bulova Watch Co

Inc., Woodside, N.Y.

Continuation-in-part of Ser. No. 915,612, Oct. 6, 1986, Pat. No

4,664,533. This application May 11, 1987, Ser. No. 48,14

Int. Cl.⁴ G04B 37/12, A44C 5/00

U.S. Cl. 368—282

5 Clai

h case and brac

nponents are so a

the case as to simulate a soldered look, yet these components may readily be detached to replace the bracelet, said assembly comprising

A. a metal case provided with a pair of opposi

each end leg at its rear having a slot indent

which is defined by parallel walls, the rear

being depressed along its inner periphery

socket for nesting a watch movement,

B. a connector formed of sheet metal attached

of each bracelet component and havi

projecting therefrom which is snug

lated slot of the case; and

ver plate received in said socket to enclose the move-

m, said plate having a flange which overlies the slots

case to entrap the hook

seeks to angle the brace

pect to the case causes the hooks u

press against one of the walls so that the fo

the flange of the cover plate, and to detach

METHOD AND APPARATUS FOR DETECTING TRACK CROSSINGS ON AN OPTICAL DISC

Tsuneo Yanagida, and Kiichi Kato, both of Tokyo, Japan, assign-

ors to Olympus Optical Company Limited, Tokyo, Japan

Filed May 16, 1985, Ser. No. 734,774

---

r recess, said light beam

ght flux and positive and ne

es, defocusing said light l

receiving detectors a cha

4,757,488

OL APPARATUS FOR C

EAR VELOCITY SYSTEM INFORM

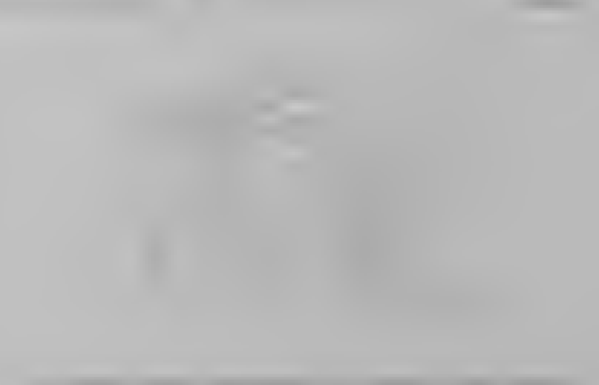
RECORDING DISC

o Nagai, Sagamiko, and Hirohisa Yamaguchi

Japan, assignors to TEAC Corporation, Tokyo, Japan

Filed Nov. 10, 1986, Ser. No. 929,597

ims priority, application Japan, Nov. 15, 1985, 60-255



thin a predeterm

aratus comprisi

ting means fo

formation recordi

detection pulses hav

Japan, Japan

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x for gener

ned signal a second signal having a second frequency
i successively increases,

rator means for comparing said first and second signals and for producing a signal indicating whether or not said first and second frequencies are equal to each other,

means supplied with the output signal of said com
or means for obtaining a present rotation frequency
ed information recording disc from said predeter-
d signal produced by said control means at a time
said first and second frequencies become equal to
ther

rotates at the co

ALITY DETECTOR
OPTICAL SOUND-RECORDING SYSTEM

Kenichi Shirai, and Yoshio Ozaki, both of Shinagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

P84 00261, § 371 Date Jan. 21, 1986, § 102(e)
986, PCT Pub. No. WO85 05485, PCT Pub.

ne apparatus in whic

said
ing

setting signal and wh
dicated by said scanning
than an upper limit scannin
said upper limit setting signal or becomes smaller than a
wer limit scanning width indicated by said lower limit setting
nal and which produces a detection signal indicating a result
wherein said modulation abnormality detec
first and second comparator means having
erting inputs connected to said scanning
al and respective inverting inputs connected
negative voltage sources for producing an

signal, and wherein said logic circuit means
ector receiving said scanning width control

ector receivin
cond comparat

cuits connected to be triggered b
first and second NAND gates,
second multivibrator circuits be.

4,757,491
SOUND GENERATING TOY

Eiichi Kothe, Sagamihara, Japan, assignor to Ozen
Tokyo, Japan

Filed Oct. 27, 1986, Ser. No. 923,436
Claims priority, application Japan, Jan. 31, 1986,
Int. Cl.⁴ A63H 3/33; G01L 9/04; G11B 19/

rating toy comprising

transmitting outer skin of said to
s through the outer skin of sa
conductive elements being spa

air of photoco
rator including
detecting a rel

of a light blocking objects, a positiv
operational amplifier and a negative
operational amplifiers being connecte
voltage divider point
tional amplifier and a

by a predetermined value than a voltage V
divider point and said second voltage set
upplies a second set voltage V_{S2} having
y the predeterm
voltage divide

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4,757,495

ECH AND DATA MULTIPLEXOR OPTIMIZED FOR
SE OVER IMPAIRED AND BANDWIDTH RESTRICTED
ANALOG CHANNELS

ight W. Decker, Cupertino; Payne Freret, Los Altos; Dirk
Hughes-Hartogs, Morgan Hill; Mark B. Flowers, Mountain
View, and Frederick L. Mueller, Palo Alto, all of Calif., as-
signors to Telebit Corporation, Mountain View, Calif.
Filed Mar. 5, 1986, Ser. No. 836

TED TELEPHONE SYSTEM
thulet, Scarsdale, and Joseph Hardy,
both of N.Y., assignors to Bard Technologies, Bedfo
ontinuation-in-part of Ser. No. 62
,646,296. This application Apr

3) updating said stored sta
esponse to said received da

assignors to Lan-Tel, Inc., Marlboro, M
iled Dec. 3, 1986, Ser. No. 93

tributed, digital voice, data

THOD AND APPARATUS FOR HAN
TELEVISION SIGNALS
Bruce Murray, Slough, England, assignor to
ration, New York, N.Y.
Filed Mar. 4, 1986, Ser. No. 836,032
Claims priority, application United Kingdom, Mar
985, 8506325; Jan. 13, 1986, 86
Int. Cl.⁴ H04N 7/68

a random access

ndale, Ariz., assi
ration, Phoenix

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plurality of frames, said setting being performed in response to said detected first all zero octet; and
repeating said steps of examining, first testing, first placing, second testing and first setting for each of said octets of said plurality of frames.

4,757,501

METHOD FOR ZERO BYTE TIME SLOT INTERCHANGE

ve S. Gorshe, Glendale, Ariz., assignor to GTE C Systems Corporation, Phoenix, Ariz.

Filed Dec. 22, 1986, Ser. No. 944,10

Int. Cl.⁴ H04J 3/00; 3/12

transmission system having first and second systems connected via T-carrier line facilities

tet

tet, said violating all

has less than 3 logic ones

including said all zero octet

as more than 14 consecutive

ntents, said first testing being per

said detection of an all zero octet

of said detected violating all zero

ating all zero octet position,

amining, first testing and inser

orresponding to said f

4,757,502

AIN CONTROL METHOD AND CIRCUIT FOR A TIME DIVISION MULTIPLE ACCESS RECEIVER

rnard Meuriche, Paris, and Claude Bareyt, Montmorency, both of France, assignors to Alcatel Thomson Faisceaux Hertziens, Cedex, France

Filed Jan. 21, 1986, Ser. No. 820,29

Claims priority, application France, Jan. 22, 1985, 85 008

Int. Cl.⁴ H04J 3/

S. Cl. 370—104 6 Claims

1. A method of providing automatic gain control (AGC) in ivision multiple access (TDMA) receiver, said receiver ig data packets in succession from one or more trans tions, each packet comprising, in succession, a pream- en a data sequence, said preamble beginning at least it portion for enabling the receiver to recover the of a signal carrier wave, said method comprising the erforming automatic gain control on at least a pa ortion of said preamble by storing the amplitu

received

automati

SELF-TESTING DYNAMIC RAM

John P. Hayes, and Younggap You, both of Ann Arbor, Mich., assignors to The University of Michigan, Ann Arbor, Mich.

Continuation of Ser. No. 692,950, Jan. 18, 1985, abandoned. This application Apr. 3, 1987, Ser. No. 34,499

Int. Cl.⁴ G01R 31/28

integrated circuit of the type having at least first storage arrays of storage cells, each storage arra ranged as an array of rows and columns of the stor method comprising the steps of

generating a data test pattern with a test gene refresh circuit, each being formed integral RAM integrated circuit,

writing a selectable complement of said data tes first and second storage arrays;

in each column of each storage

nn using a plurality of shift gat

each row of each storage array functions as a sh

precharging a detection conductor to a predeter

olumn of the

a corresponding

ud comparison being

try formed integrally

ind

4,757,504

POLYPHASE PARITY GENERATOR CIRCUIT

ck A. Stambaugh, Missouri City, and Stephen P. Sacarisen, Richardson, both of Tex., assignors to Texas Instruments Incorporated

Filed Apr. 21, 1986, Ser. No. 854,44

Int. Cl.⁴ G06F 11/10

a prestage circuit having a plurality of parallel decode cuits each couplable to a pair of data lines of said data each of said decode circuits having a prestage output line, each of said dec viding an output signal on its odd line on its pair of data lines is odd and an output signal on its even line otherwise, and

precharge/discharge circuit having a plurality of odd and nes connected to the odd and even prestage rom said decode circuits, respectively, for ts output a first parity signal level in re- nber of 1's being on its odd and even nd parity signal level in response to r of 1's being on the odd and even input

circuit for checking a iple bit data values on said dat said precharge/discharge circuit

4,757,505

COMPUTER POWER SYSTEM

Paul Marrington, Fyshwick, Australia; Paul Kianahooy-Fard, San Diego; P. Zecos, Del Mar, both of Calif., and Geoffrey Rudaw, Nancet, N.Y., assignors to Elgar Electronics Corp., Diego, Calif.

Filed Apr. 30, 1986, S

Int. Cl.⁴ G06

source, operates said power source selector connect the computer to the auxiliary power provides a failure indication output restoration of the main power so power source selector switch conn the main power source and provid n indication output;

ling means for providing the fail d the power restorati ter from said status ection means store means including

shutdown code for executing sequence upon receipt of the failure ind from said signalling means

restart code for executing a preprogrammed quence upon receipt of the power restorati output from said sig

intervention code pro defeat the preprogrammed shutdow d shutdown se

VITERBI DECODER AS WELL AS USES THE

Johannes Heichler, Murrhardt, Fed. Rep. of Germany Germany

Filed Jan. 9, 1987, Ser. No. 1,9

Claims priority, application Fed. R 986, 3618

ie improvement ning each path range of operatio

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K – 1 bits
mmediately

ted states and feeding to those channels t

buffer memory whose content r

ank, Ebersberg, all of Fed. Rep. of Germany, assign
lesserschmitt Bolkow-Blohm GmbH, Munich, Fed

p stram and a

,757,508

David E. Zimmerman, Grass Valley, Calif., assignor to Grass Valley Group, Inc., Grass Valley, Calif.
Filed Dec. 7, 1987, Ser. No. 129,617
Int. Cl.⁴ H01S 3/10

multiplying the maximum forward cu

Japan
Filed Jul. 23, 1986, Ser. No. 888,398
pplication Japan
Int. Cl.⁴ H01S

waveguide layer formed on said second

type formed on said semiconductor w
third semiconductor clad layer being
in forbidden bandwidth than said w
guide layer,
emitted from said semiconductor active layer being guided by a coupled waveguide defined by difference in refractive index between said first and second semiconductor clad layers and said semiconductor active layer and difference in refractive index between said second
third clad layers and said semiconductor waveguide l
said semiconductor active layer being formed so a
separation from said se
n the vicinity of laser
second separation in
ween, said first separation being larger than
separation to prevent coupling of laser light b

**aneno, and Kenji Ikeda, both of Itami, Japan, assign-
itsubishi Denki Kabushiki Kaisha, Tokyo, Japan**
Filed Sep. 24, 1986, Ser. No. 911,153
pplication Japan, Sep. 26, 1985

**Klingel, Hans, Moeglingen; Juergen Weick, Asperg, a
Ackermann, Stuttgart, all of Fed. Rep. of Germany
to Trumpf GmbH & Company, Fed. Rep. of Germ**
Filed Nov. 22, 1985, Ser. No. 800,915
Claims priority, application Fed. Rep. of Germ

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LVER OXIDE CATALYST WITH
IN TO A CO₂ LASER
llace Rd., Santa Rosa, Calif. 95404
eb. 18, 1987, Ser. No. 16,060
Int. Cl.⁴ H01S 3/22

e is positioned and config

FOR USE IN PUMP
ESTATE LASERS
Amada Engineer

said longitudina
at the midsectio
d regions in the longitudinal direct
sing small flat mirror segments

than D. Hoag, Boston, Mass., assignor to Laser Corporation o

Filed Aug. 13, 1985, Ser. No. 765,229
Int. Cl.⁴ H01S

4,757,51
LASER TUBE C
ghes, Canberra, Australia

gether, said first and s

TRANSVERSAL EQUALIZER

Makoto Yoshimoto, and Seiichi Noda, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Sep. 26, 1986, Ser. No. 911,937
laims priority, application Japan, Sep. 30, 1985, 60-215381
Int. Cl.⁴ H03H 7/30

equalizing distortion of a digit
ermediate frequency band, com
for dividing a digitally modulat
vo outputs which are orthogonal to each other
hree first weighting means for weighting a first
utputs of said branching means,
weighting means not greater in number than
ghting means, for weighting the other of sa
ud branching means,
mbining means equal in
means and
elaying means fewer in nu

bining means and said delaying means being inter
ted sequentially and alternatively, such that an
ne of said delaying means is applied as an
sequential one of said combining means
weighting means having an output applied
put to a respective one of said combining means.

second weighting means having an output applied

SYSTEM FOR TRANSMITTING VOICE SI

Yohtaro Yatsuzuka, Tokyo, Japan, assignor to Kokusai Denwa Kabushiki Kaisha, Tokyo, Japan
Mar. 27, 1987, Ser. No. 31,39
pplication Japan, Apr. 4, 1986, 61-76

g a voice signal compris

residual signal in order to
quality, transmission means
tive residual signal, means f
quency voice signal inform
frequency spectrum there
indicative information for transm
means, said waveform coder compris
for obtaining a coded low-frequenc
mitted, a sho
diction valu
predictor f

low-frequency voice signal

Tokyo, Japan
Filed Feb. 12, 1987, Se

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UMI

DIGITAL PREMODULATION FILTE

bert R. Collison, Veradale; Michael T. Wende, and Raymond A. Birgenheier, both of Spokane, all of Wash., assignors to Hewlett Packard, Palo Alto, Calif.

Filed Oct. 2, 1987, Ser. No. 104,2

Int. Cl.⁴ H03C 3/

17 Clai

to said programmable digital filter
of arrays of filter coefficients, eac
nt, selectable
rent, select-

ed Dec. 3, 1986, Ser. No. 93
the term of this patent subsequen

edge pulse generator means, adapted to receive said digital FM signals and connected to said clock pulse generating means, for generating a plurality of edge pulses in accordance with the rise and fall of said digital FM signal, said edge pulses including data edge pulses and clock edge pulses;

means for delaying each one of said clock edge
predetermined period of time to produce dela

ans, connected to said delay means and to
letion means, for counting said post-deletion pulses, said counting begins synchronously with one of said delayed clock edge pulses and terminates upon the arrival of a next one of said delayed clock edge pulses,
plement means, connected to the first counter means, for
rming complements of the contents of said first counter,
nd counter means, connected to said clock pulse gener-
d delay means and to said comple-
ting by "1's" and "0's" said comple-
dance with said successive clock pulses,
, connected to the second counter means, for
tate in which said second counter means

ans, connected to said delay means for defin-
ng and a termination of a mask which synchronizes FM demodulation, said mask beginning is initiated when said flip flop means is set b
clock edge pulses, said mask is termina
lop means is reset in accordance with an output of
n means,
means, connected to said first flip flop mea
and to said edge pulse generator means and to said detector means, for providing the demodulated digital output and for generating output data pulses synchronously with
data edge pulses obtained when said first flip
set and when said detector means detects a

ncent V. Korsky, Shelton, and Chansak Laotetp
bridge, both of Conn., assignors to Tie/Communi
Stratton, Conn

able delay time,

means at the second location receiving said first data signal for determining if said first data signal is present at a selected time in synchronism with said second data signal,

ans at the second location for transmitting coded data associated with respective values of said adjustable delay time to said first location;

said delay means at the first location being responsive to said coded data for varying the delay time as said first data signal is being transmitted to the second location;

hereby when said means for determining at the second location detects the presence of said first data signal at said second location at the selected time, said means at said second location for transmitting transmits a selected on of said coded data to said first location associated with a value of the delay time which maintains synchronism between said first data signal and the second data signal at the second location, said selected one of said coded dat
selecting the value of said delay time so as to impl
said delay time at said first location such that the fi
signal is present at the selected time at said seco
tion; said means for determining further comprising
means for sampling said first data signal at a select
means for identifying a first delay time when a port
said first data signal first occurs at said selected t
for identifying a second delay time when a po
said first data signal last occurs at said selected time; an
means for calculating an optimum delay time between sa
first and second delay times.

4,757,522

COUNTING CIRCUIT EMPLOYING MORE EQUATABL SED PLURAL COUNTERS FOR EXTENDED LIF

Dirk Kieselstein, Mörfelden-Walldorf, Fed. Rep. of German assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 1, 1986, Ser. No. 913,95

uit with non-volatile ele
ments, said circuit comprising
y of similar counters, each of said
t and a transfer output, each counter re
place of a count,
ality of non-volatile electrically erasable
ements connected to respective ones of the counters, and
nnection means for switchably interconnecting said counters serially by the respective inputs and transfer outputs to form a series of the counters, counters near one end of the series being lower-value place counters
ers near a second end of the series being highe
place counters, a switching of interconnection
changing locations of counters in said series, and wl
counters for lower-value places of the count are cy
connected to each other via their counter i
transfer outputs, association of the coun
tive places of the count being changed by
means as a function of a signal of the counter of
lue place of the count, said connection means u
memory addressable by a higher-value place co

HIGH SPEED TESTING OF IN

Bao G. Tran, Houston, Tex., assign
Tex.

Division of Ser. No. 636,941, Aug. 2,
This application Dec. 29, 198
Int. Cl.⁴ G06F 11/

selected
means to ad
ounter stages
ic gate means

X-RAY G

R. Laul, Dana Point, Calif., ass
on, Hawthorne, Calif.

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an elongate enter conduc-

aterial attached to an interior surface of said exterior housing in opposition to said interior conductor gap

an ionizable gas filling said gap at low pressu

a source of high frequency electrical excitation conne and interior conductors to create an ity in the gap sufficient to form a co- discharge in the gas, but less than that which would se an arc discharge through the insulating sheath adja- it said gap, said corona discharge serving as a plasma athode at said gap; and

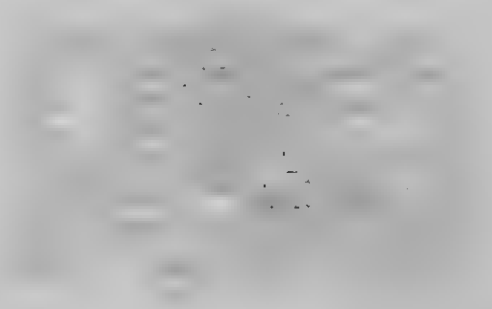
a high voltage pulse generator connected across said interior conductor and said target to accelerate electrons from the nto said high Z target to form hard

4,757,525

TRONIC AUDIO COMMUNICATIONS SYSTEM WITH VOICE COMMAND FEATURES

Gordon H. Matthews, Plano; Thomas B. Tansil, and Michael L. Fannin, both of Dallas, all of Tex., assignors to VMX, Inc., Dallas, Tex

Continuation-in-part of Ser. No. 428,161, Sep. 29, 1982, Pat. No 4,580,012, which is a continuation-in-part of Ser. No. 97,240,



ssage the

n code for each auth cation with each identificati ker independe ker independen

of the speaker independent command word templates associated with that code,

storing in association with each authorized identification code a plurality of command word digital speaker dependent templates, each speaker dependent template including a set of values representative of the distinctive characteristic features of an authorized user associated with that code and the actual voice speaking one of a plurality of the command words indicative of a specific control function which the authorized user de of the message system, ea templates associated with the identification code authorized user.

receiving and storing, in response to the operational sta the message system being in one of a plurality of control receptive states, digital representations of audio signals produced by the voice of an authorized user speaking one of a plurality of command words from a telephone station;

comparing the stored digital representations of the spoken command word with the selected speaker dependent templates associated with the indentification code of the authorized user, and

producing an output signal to effect a specific control function of which the spoken command the operation of the message system between the stored digital represe command word and one of the select templates

4,757,526

AL TRANSFER ARRANGEMENT

er, Naperville, and Martin J. Glapa, St. Charles ssignors to American Telephone and Telegraph T&T Bell Laboratories, Murray Hill, N.J

ed Apr. 16, 1987, Ser. No. 39,058

Int. Cl.⁴ H04M 7/06 3/42

a terminal c ting to sai ice to said attendant p comprising means resp

method of signal dant services comprising the steps of ISDN message at a first exchange in said

4,757,527

ECHO CANCELLER

aham Beniston, Bucks; Nigel P. Dyer, London, and Andrew J. T. Wheen, Maidenhead, all of England, assignors to Plessey Overseas Limited, Ilford, England

Filed Sep. 4, 1985, Ser. No. 772,571

Claims priority, application United Kingdom, Sep. 1

Int. Cl.⁴ H04B 3/23

echo canceller comprising a first adaptive filter for generating a synthetic echo signal and having a nts, means to adjust the coefficients of said first filter in dependence upon differences between the synthetic echo signal and a real echo signal to be cancelled, a second programmable filter for generating a synthetic echo signal for mixing wi put signal of the converter, and transfer control logi to determine whether the synthetic echo signal fro lter matches the real echo signal more closely th thetic echo signal from the second filter, and, if so, coefficients of the second filter to be updated to coefficients of the first filter, said transfer control sing first error signal generating means for genera ror signal in dependance upon the difference between nthetic echo signal from said first filter and the real e

eal echo signal, means arranged to second filter until t is consistently closer to the real echo signal than the synt echo signal from the second filter, said delay means include up-down counter arranged to count in one direction when first error signal is smaller than the second error signal and an opposed direction when the second error signal is smal then the first error signal, said transfer control logic be arranged to effect updatin filter when a pre-determine transfer control logic further comprising m second error signal, means for determin

TRANSMISSION ACROSS ELEC BOUNDARI

Scott L. Falster, Plymouth, Minn., and Melbourne, Fla., assignors to Harris Corpo Fla.

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ALL DISTRIBUTION ARRANGEMENT

artin J. Glapa, St. Charles; Dorothy E. Harris, Naperville
Anthony E. Lenard, Westmont, and Brian P. McMahon, Carpentersville, all of Ill., assignors to American Telephone and Telegraph Company, AT&T Bell Laboratories, Mu
[illegible]ill, N.J.

Filed Feb. 28, 1986, Ser. No. 834,99

[illegible]

pean, Canada, assignor t [illegible]

[illegible] May 14, 1984 [illegible]

4,757,5

ENCRYPTION OF TEL

olas K. Lodge, Salisbury; Arth
Barry A. Flannigan, Winchester
to Independent Broadcast

PCT No. PCT/GB84/00106, § 371 Date Nov. 20, 1984, § 102(e)
Date Nov. 20, 1984, PCT Pub. No. WO84/04013, PCT Pub
1984

Filed Mar. 28, 1984, Ser. No. 678,
Claims priority, application United Kingdom, M
8308482; Jun. 30, 1983, 8317797
The portion of the term of this patent subsequent
2004, has been disclaimed.
Int. Cl. H04N 7/167

e section, comprising
iding the chrominance section into a pluralit
ring said blocks, the digital section and th
section in a first order; and
reading out said blocks, said digital section and said l
inance section in a second order such that at least one
the blocks is read out before the luminance section and the remainder of the blocks are read out after the luminance section to produce an encrypted line, the position of the
ection in the encrypted line being shift
position of the luminance section of

4,757,53

WARE TRANSPORT OF INFORMATION BETWE
ELECTRONIC STATIONS

nis T. Gilham, Ongar, United Kingdom, assignor to Al
Business Systems Limited

Filed Apr. 21, 1986, Ser. No. 853,92

peratively connectable with s
eans of said transportable unit

SECURITY SYSTEM FOR MICRO

chael J. Allen, St. Charles, and John Lan

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qective to each file when so de
he current states of the users an

may be carrie

ssignors to International Business Machines

4,757,535

OR ENCRYPTED INFORMATION
TRANSMISSION

orbert Erbes, Karlsruhe, and Dietrich Rother, Tamm, both of
Fed. Rep. of Germany, assignors to Alcatel N.V., Amsterdam,

Filed May 20, 1986, Ser. No. 865,496

1. A secure two-way data transmission system c
ast two transmitting/receiving stations for en

sync-word memory containing
ation in which at least each of th

pro-
mber
om-
atic
ser.

ETHOD AND APPARATUS FOR TRANS
CRYPTOGRAPHICALLY ENCODED DIGI
Craig F. Szczutkowski, Forest; Satish Kappagan
burg, and Eugene H. Peterson, III, Forest, all of Va
ors to General Electric Company, Lynchburg, Va
Filed Oct. 17, 1984, Ser. No. 661,753

annel, s upris
ansmitter and receiver means for transmitting and/or
ing a succession of digital signals, and
ntrol means connected to said transmitter and
means and including a digital data microprocessor
programmed so as to perform the following functio
(a) initial synchronization acquisition wherein said recei
digital signals are scanned for an initial preamble port
from which frame synchronization, addressing and cry
aphic synchronization signals are extracted,
ing synchronization maintenance wherein said re-
d digital signals are scanned for data frames succeed-
said preamble portion and from which data frames a
ast said frame synchronization and said cryptograp
nchronization signals are repeatedly extracted so as
ermit maintenance of such synchronization th
he decoding of an encrypted message compris
ch data frames, and

nt frame synch
nization are los
e. said data frames ar
synchronization, addressing and
onization signals are nevertheless

a substantially the foll

a 16 bit sync number code including a m
mber code (identifying which of the 12
volved) repeated at least once i
orm and also including at least 1 1
peated sets of

nded message re
ssive data frames
1 bit header por

dress repeated at least once,
a 16 bit selective signaling cod

PRINTING IN A VALUE PRINTING SYST
George B. Edelmann, Wilton, and Arno Muller, West
of Conn., assignors to Pitney Bowes Inc., Stamfor

Scott E. Zink, Portland, Oreg., a
Beaverton, Oreg.

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4,757,539

ND ME THOD FOR DECO
O BROADCASTING SI
EPENDENT SIDEBA

nd Masashi Arai, both of Gunma, Ja
Ltd., Japan
46, Ser. No. 940,

THOD FOR AUDIO
Fairfax, Va., assignor to E-Systen

83, Ser. No. 54
101 5

nce of digital samples,

to define first and second correlation
ely, following said first and second

ther the secon

4,757,541

AUDIO VISUAL SPEECH RECOGNITION

Robert L. Beadles, Durham, N.C., assignor to Research Trian
Institute, Research Triangle Park, N.C.

Continuation of Ser. No. 794,602, Nov. 5, 1985, abandoned, which is a continuation of Ser. No. 621,138, Jun. 15, 1984, abandoned, which is a continuation of Ser. No. 320,120, Nov. 10 1981, abandoned. This application Dec. 1, 1986, Ser. N
Int. Cl.⁴ G10L 5/00

quence of spoken phonemes from a huma

eans for analyzing said signal to detect
produce an electrical acoustic output signal indicating for each of at least some of said detected phonemes one group
a plurality of phoneme groups including the detected
f said phoneme groups including at least

ptically scanning the face of said speaker and
g an electrical lipshape signal representing the
anifestation for at least some of said spoken pho-
ting one of a plurality of lipshapes, each
associated with at least one phoneme, and
and correlating said lipshape signal and

4,757,542

SPEECH SYNTHESIZER METHOD AND APPAR

John R. Neahr, II, Reed City; Arthur R. McKendry, Flint; Aysegul Ozkabyaoglu, and Darrel A. Dolph, both of Big Rapids, all of Mich., assignors to Nartron Corporation, Reed City, Mich.

Filed Dec. 4, 1985, Ser. No. 804,81
Int. Cl.⁴ G10L 1/00

g digital represen

4,757,543

ENCRYPTING AND DECRYPTING DEVICE WH
STORES AN ALGORITHM IN A MEMORY

Masao Tamada, Yokohama; Hitoshi Kokuryo,
Shinsuke Tamura, and Hiroshi Ozaki, both of Yokohama, a
of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasak

Division of Ser. No. 698,876, Feb. 6, 1985,
application Sep. 2, 1986, Ser. No. 902,884
Claims priority, application Japan, Feb. 9, 1984,
Feb. 9, 1984, 59-22172; Feb. 9, 1984, 59-22173
Int. Cl.⁴ H04L 9/00; G06F 1/00; G06K
U.S. Cl. 38

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recording med

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DIRECTIONAL SPEAKER SYSTEM

a, Fla.

Filed Dec. 15, 1986, Ser.

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ath comprises said low

held in fixed

substantially ho

AMPLIFIER CIRCUIT FOR A CONDENSER MICROPHONE SYSTEM

Rosander, Helsingborgsgatan 5, S-265 00 Astorp, S

Filed Feb. 24, 1984, Ser. N

ity, application Sweden,

ifier having a hi

ing the current

4,757,546

ROW DIRECTIONAL MICRO

Hiroshi Akino, Sagamihara, Japan, assignor to Kabushi

sha Audio Technica, Tokyo, Japan

Filed Nov. 17, 1986, Ser. No. 931,70

AIR COOLED LOUDSPEAKER

Thomas J. Danley, Highland Park, Ill., assignor to Intersonics Incorporated, Northbrook, Ill.

Filed Sep. 10, 1987, Ser. No. 95,398

Int. Cl.4 H04R 1/

55 6 Claims

ignal source, and an electrical

nnected to said motor means

rough said motor means sa

ctrically conne

4,757,548

ND DOME-SHAPE

THEREFOR

C E. Kentu

2, 1985, Ser

ure having an

mounted wi

g said coil at

movement of

FREEHAND DRAWING CONTA LINES

Beverly H. Machart, and John S. Wang

assignors to International Business Ma

Filed Dec. 12, 1985, Ser. N

a beginning

AUTOMATIC ACCURATE ALIGN

Masanori Uga, Hachioji, Japan, assignor

Systems, Ltd., Tokyo, Japan

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ght-receiving opening spaced apart eiving opening and optical channel light received through one of the low magnification image and light ed through both of the openings to provide high ification images,

means receiving at least a part of the images of of the object held on the holding means from al means and providing analog signals indicativ nsities of x-y matrix arrayed pixels,

memory for memorizing signals correspond log signals provided by the camera means, emory for memorizing a first signal repre magnification key pattern existing at a speci- e image projected to the camera means at the magnification, a second signal indicatin v magnification key pattern, a third gh magnification key pattern exist-

ttern in the image projected t elatively low magnification and n matching to detect the same pa gnification key pattern in the images p camera means at the relatively high magn ttern matching means performing the patte

pattern matching means, and there- tioning the object held on the hold- g means in respon ing performed

LE OF RECOGNIZING SLANT CHARACTERS

Kobayashi, Yamato; Akira Sakurai, Kawasaki, and ato, Kamifukuoka, all of Japan, assignors to Ricoh y, Ltd., Tokyo, Japan

ed Oct. 3, 1986, Ser. No. 915,.8

processing means for processing character data suppl from said reading means, said processing means proce ing said character data to produce a character feature said character to be recognized in accordance with predetermined manner,

means for storing a first plurality of reference ch without inclination to the form of said charact ; and a second plurality of reference characters w

eference character stored in mining a degree of similarity between the two characters compared, and comparing means having a first mode of operation in which both of said first and second pluralities of reference characters ar eration in which o es of reference

ETHOD FOR PROCESSING BINARY IMAGE DATA

ido Asano, Machida; Eisuke Kanzaki, and Yutaka Shimizu, both of Fujisawa, all of Japan, assignors to International Business Machines Corporation, Armonk

Filed Oct. 15, 1985, Ser. No.

laims priority, application Japan, Oc

thod for processing binary image data supply means, in preparation for compr e, the proces

nd distance to

distance nor the absolute value of said second distance is between 3 and X, where X is a predetermined positive integer,

(d) rearranging said image data to r d distance to a second predetermined arger than said first predetermined value, if eithe aid first distance or the absolute ance is between 3 and X and the a aid first distance is larger than the absolute va said second distance;

(e) rearranging said image data to reduce said first dis to said second predetermined value, if either the abs value of said first distance or the absolute value of second distance is between 3 and X and the absolute f said first distance is smaller than or equal to the abso d second distance; and

aid rearranged image data to a compress ng said compression

4,757,553

COMMUNICATION SYSTEM WITH PORTABLE U

James W. Crimmins, 15 Nutmeg La., Wilton, Conn. 0689

Continuation-in-part of Ser. No. 610,421, May 15, 1984

application Jun. 12, 1984, Ser. No. 619,803

Int. Cl.⁴ H04B 9/00

t transmitter and a lig light transmitter and a li transmitter and base unit li being operative at a first center pulse frequency and having respective light pulse modulated photo emitters and light pulse detecting photo sensors;

ight transmitter and portable operative at a second center pul

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COMBINATION OUTER GARMENT AND TEN
Ron E. Asher, Virginia Beach, Va., assignor to ecotat S
Company, Virginia Beach, Va.
Filed Jan. 31, 1985, Ser. No. 696,915
The portion of the term of this patent subsequent to No
2001, has been disclaimed.
Term of patent 14 years

LUCAS
an, 12 Crestwood Dr

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12
1988
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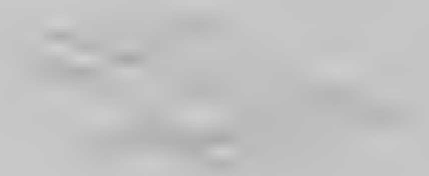
ludson Ave., Los Angeles, Calif 90065
1984, Ser. No. 668,975
m of this patent subsequent to Jul. 5, 2002,
as been disclaimed.

TIC SHOE UPP

rown, Hingham, and Juan A. Diaz, Weymouth, both of
ssignors to Reebok International Ltd., Canton, Mass
, 1986, Ser. No. 93
f patent 14 year

Paul D. Brown, Hingham, and Tuan N. Le, Cohasset, both of Mass., assignors to Reebok International Ltd., Canton, Mass
Filed Feb. 6, 1987, Ser. No. 11,739
Term of patent 14 years



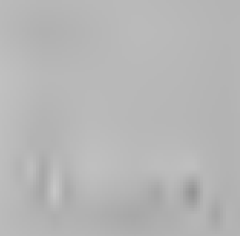
HOE UPPER

Paul D. Brown, Hingham, and Juan A. Diaz, Weymouth, both of Mass., assignors to Reebok International Ltd., Canton, Mass
Filed Sep. 4, 1987, Ser. No. 93,510
Term of patent 14 years

rown, Hingham, Mass., assignor
td., Canton, Mass.
iled Sep. 8, 1987, Ser. No. 93
Term of patent 14 years

296,614
AVING CASE FOR AUDIO CASSETTES
McGennis, Buffalo, N.Y., assignor to Buffalo Vi
Machine Tool Corporation, Buffalo, N.Y.
Filed Jul. 15, 1985, Ser. No. 754,773
Term of patent 14 years

CARTRIDGE DISPLAY
E. McCoy, 4912 Gloria Ave., Encino, Calif.
Filed Aug. 5, 1985, Ser. No. 762,391
Term of patent 14 years



SALLET
ville, N.Y., ass

Filed May 6, 1985, S
Term of paten

ker, South Euclid, Ohio, assignor
Cleveland, Ohio
May 22, 1986, Ser. No. 866,085
Term of patent 14 years

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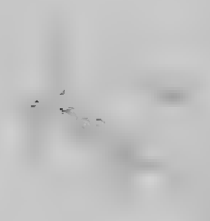
tasota, Fla., assignor to Encore F



Dartford, England

Jul. 29, 1985, Ser. No. 759,84

TABLE AND SEATING

Hernando O. Herrera, 1118 Porter St., San Antonio

Filed Jan. 2, 1986, Ser. No. 815,415

Term of patent 14 years

Inc., Sarasota, Fla.

Filed May 22, 1986, Ser. No. 865,83

Term of patent 14 years

FOOTSTOOL

Kenneth S. Dickford, RFD #3-Box 23C, Stonington

Filed Apr. 18, 1986, Ser. No. 855,79

STOOL OR SIMILAR ARTICLE

T. Chadwick, Los Angeles, Calif., and William Stumpf, Winona, Minn., assignors to Herman Mille

Division of Ser. No. 581,360, Dec. 17, 1986. This appl Dec. 31, 1986, Ser. No. 948,160

Term of patent 14 years

CHAIR

Bellini, Milan, Italy, assignor to Fehlbau Switzerland

Filed Apr. 24, 1985, Ser. No. 726,4

Claims priority, application Switzerland, O

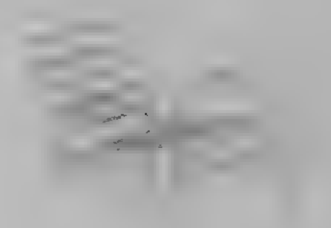
CHAIR OR SIMILAR

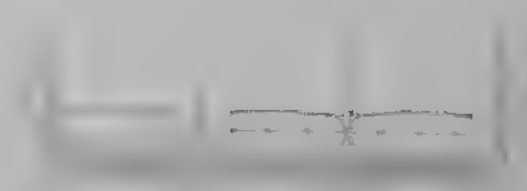
lhauser, Paramus, N.J., assignor

nerica, Inc., Montpelier, Ohio

Filed May 15, 1986, Ser. N

Term of patent 14

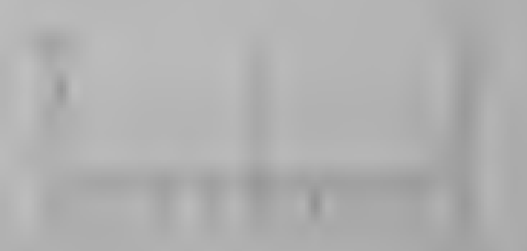




LOVESEAT

Robert K. Thorpe, 2 W. C Beach, Calif. 92

Filed Apr. 10, 198

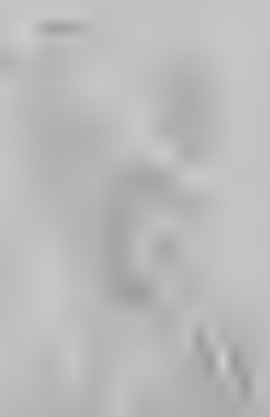


VOL 1092 ISS 2 JL 12 1988 UMI

Term of patent 14 years

BOOK SUPPORT AND LAMP

Tong, Shatin, Hong Kong, assignor to To-Yan Lu Hong Kong, a part interest
Filed Feb. 21, 1986, Ser. No. 834,632
riority, application Taiwan, Jan. 6, 1986, 86300029
Term of patent 14 years

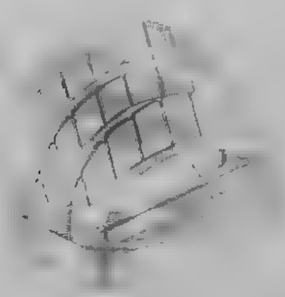


LIQUID SAMPLE COLOR COMPARISON RACK

lter Renold, Conches, and Christian Favez, Les Avanchet both of Switzerland, assignors to Firmenich S.A., Genev
Filed Aug. 6, 1985, Ser. No. 763,026
Claims priority, application World Int. Prop.
1985, DM 004759

296,631
JEWELRY HOLDER AND DISPLAY ST

Lorraine S. Galairde, 2123 E. Farmdale Ave., Mesa, Ariz.
Filed Jan. 21, 1986, Ser. No. 819,733
Term of patent 14 years



DISPLAY CABINET

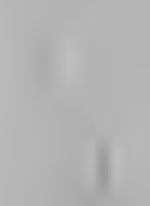
rins, 11 Galgenstraat, 2232 Sch
Mar. 25, 1986, Ser. No. 845,81
m of patent 14 years

DISPLAY CABINET

Maurits L. De Prins, 11 Galgenstraat, 2232 Sch
Filed Mar. 25, 1986, Ser. No. 845,81
Term of patent 14 years

erton, Ga., assign
Filed Jan. 8, 1986
Term of pate

James O. Ketley, Spring Lake, Mich., and Milan, Italy, assignors to Herman Miller, Mic
d Dec. 23, 1985, Ser. No. 812,24
Term of patent 14 years



296,636
TOOTHBRUSH HOLDER

Edward J. Martin, 3388 Reedy Dr., Annandale, V
Filed Nov. 19, 1985, Ser. No. 805,92
Term of patent 14 years
D6—53

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2
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UMI

296,637

WALL SHELF

ter S. Fayerman, Bryn Mawr, and Leslie A. Mock, Blandon, both of Pa., assignors to Baldwin Hardware Corporation, Reading, Pa.

Filed Oct. 18, 1985, Ser. No. 789,174

Term of patent 14 years

296,638

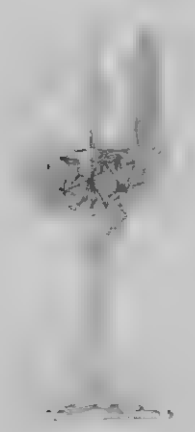
STEMMED WINE GLASS OR SIMILAR ARTICLE

-Jacques Durand, LaBute, 62510, Arques, France

Filed Mar. 20, 1986, Ser. No. 845,388

Term of patent 14 years

—11



STEMMED WINE GLASS OR SIMILAR ARTICLE

-Jacques Durand, LaBute, 62510, Arques, France

Filed Feb. 19, 1986, Ser. No. 834,065

Term of patent 14 years

296,640

BOWL

Charles R. Miller, Williamsburg, Va., assignor to Rampart Packaging, Inc., Williamsburg, Va.

Filed Dec. 16, 1985, Ser. No. 809,597

Term of patent 14 years

U.S. Cl. D7—20

296,641

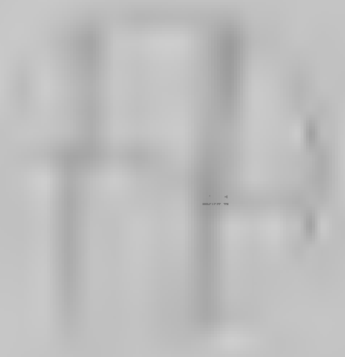
PLATE OR THE LIKE

Julia B. Gill, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Nov. 1, 1985, Ser. No. 793,775

Term of patent 14 years

U.S. Cl. D7—35



TRANSFER SURFACE OR THE LIKE FOR CULINARY WARE

Julia B. Gill, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Nov. 1, 1985, Ser. No. 793,774

Term of patent 14 years

U.S. Cl. D7—39

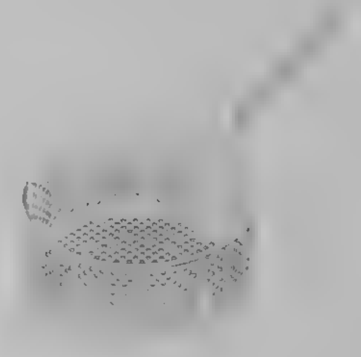
296,643

COOKING BASKET

David J. Mueller, Kewaunee, Wis., assignor to General Housewares Corporation, Terre Haute, Ind.

Filed Jul. 8, 1985, Ser. No. 752,964

Term of patent 14 years



296,644

COFFEE BREWING DEVICE

Duryea T. Stevens, West Melbourne, Fla., assignor

Ilotan Research Corporation, New York, N.Y.

Filed Oct. 1, 1985, Ser. No. 782,548

Term of patent 14 years

S. Cl. D7—4

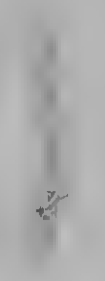
296,645

VACUUM BOTTLE

Mark C. Seeley, 2018 Erin Loop E., Colorado

Filed Nov. 14, 1985, Ser. No. 804,972

Term of patent 14 years



CORN COB BUTTER CUTTER AND SPREADER

Charles A. Yoder, 1376 Countryside Dr., Millsboro, Del. 19

Filed Nov. 14, 1985, Ser. No. 805,101

Term of patent 14 years

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FRYING PAN
7677 E. 21st St. #1106, Wichita, I
Filed Sep. 30, 1985, Ser. No. 781,729
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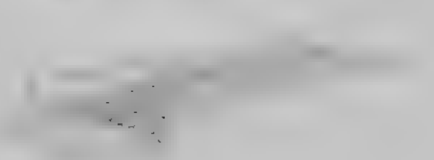
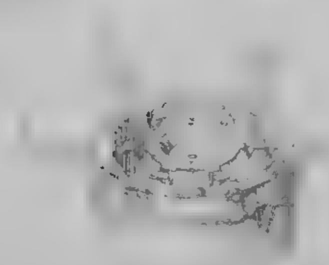
296,648
STOVE TOP BROILER
aborg, 5580 Wood Valley Dr., Haslett, Mich. 48840
Filed Apr. 1, 1985, Ser. No. 718,333
Term of patent 14 years

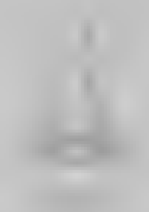


296,649
LANTERN STOVE ATTACHMENT
ier, P.O. Box 311, Roark, Ky. 40979
Filed Sep. 17, 1984, Ser. No. 651,695

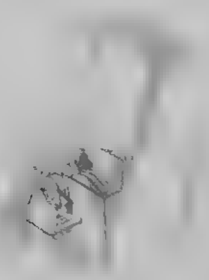


296,650
COMBINED VEHICLE DOOR OPENER AND KEY INSERTER
Ralph H. Marx, 7702 N. 17th Pl., Phoenix, Ariz. 85020
Filed Oct. 15, 1985, Ser. No. 787,371
Term of patent 14 years
U.S. Cl. D8—14

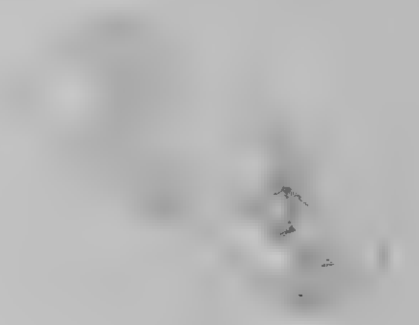
296,651
SOCKET WRENCH FOR SPRINKLER HEADS
Ricardo de Armas, 853 N. California St., Burbank, Calif. 91505
Filed Jun. 10, 1985, Ser. No. 742,946
Term of patent 14 years
U.S. Cl. D8—29



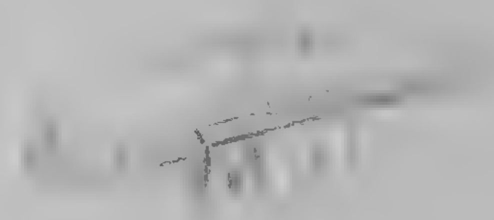
296,652
CAN OPENER
Roger Kelly, Eau Claire, Wis., assignor to National Presto Industries, Inc., Eau Claire, Wis.
Filed Aug. 16, 1985, Ser. No. 766,254
Term of patent 14 years



CAN OPENER
Joseph J. Dawson, 9967 Foothill Blvd., Lakeview Terrace, Calif. 91342
Filed Oct. 21, 1985, Ser. No. 789,467
Term of patent 14 years
l. D8—40



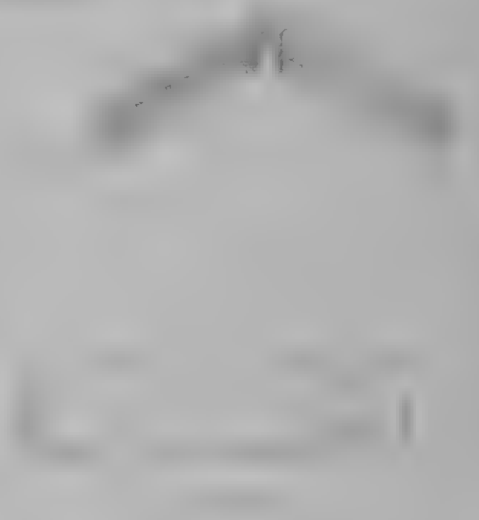
296,654
COMBINED CORDLESS SCREWDRIVER AND CHARGING STAND
Kenneth N. Svetlik, Schaumburg, Ill., assignor to Skil Cor tion, Chicago, Ill.
Filed Dec. 12, 1985, Ser. No. 808,271
Term of patent 14 years
8—61



296,655
COMBINED ELECTRIC DRILL AND SCREWDRIVER
Kazuyoshi Yonezawa; Yonosuke Iwai, both of Kadoma, Japan, and Florian Seiffert, Weisbaden, Fed. Rep. of Germany, assignors to Matsushita Electric Works, Ltd., Japan
Filed Feb. 5, 1986, Ser. No. 826,262
Claims priority, application Japan, Aug. 9, 1985, 60-34364
Term of patent 14 years
U.S. Cl. D8—68

LIFTING TOOL
Norman E. Johnson, Sr., 852 W. 11th Ave., Escondido 92025
Filed Nov. 4, 1985, Ser. No. 803,867
Term of patent 14 years
U.S. Cl. D8—89

296,657
HANDLE FOR A DOUBLE BLADE KNI
Richard J. LeFeber, P.O. Box One, Cattaraugus, N
Filed Jan. 31, 1986, Ser. No. 824,883
Term of patent 14 years



LIFTING HANDLE FOR TOILET SEATS OR THE LIK
Edna Mead, Bronx, and Louise M. Tricard, Poughkeepsie, b of N.Y., assignors to Jane Mead Peters, South Salem, N by said Edna Mead
Filed Dec. 16, 1986, Ser. No. 942,424
Term of patent 14 years
U.S. Cl. D8—30

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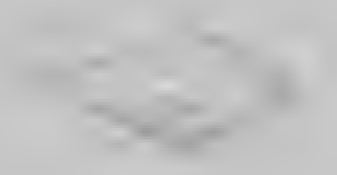
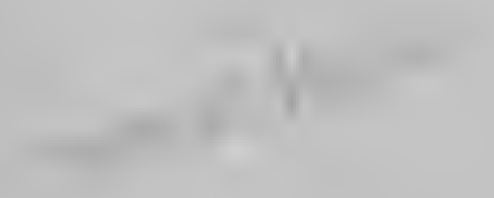
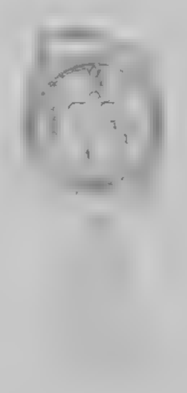
296,659
COMBINATION-OPERATED COILED CABLE LOCK
lashi Sakai, Seto, Japan, assignor to Kabushiki Kaisha
, Japan
Filed May 8, 1986, Ser. No. 859,894
Term of patent 14 years
— 3



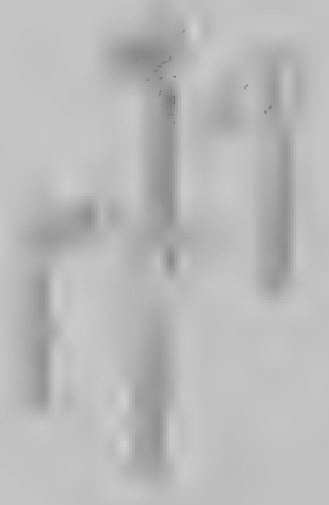
296,660
COMBINED CONSOLE GEAR LEVER AND HANDBRAKE LOCK
la P. Freddey, 3 Blackett Street, Heathcote, New South Wales 2233, Australia
Filed Jun. 20, 1986, Ser. No. 877,543
laims priority, application Australia, Feb. 14, 1986, 4195/86
Term of patent 14 years
8—3



HOUSING FOR AN EXTENSION CORD REEL
es D. Kovacik; James W. Kovacik, both of Parma; Thomas Blanch, Hudson, and Paul S. Blanch, Valley View, all of hio, assignors to Alert Stamping & Mfg. Co., Inc., Bedford Heights, Ohio
Filed Aug. 11, 1986, Ser. No. 895,674
Term of patent 14 years
U.S. Cl. D8—35

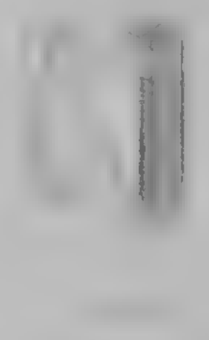


296,662
RAIL SPIKE UNIT
Hartley F. Young, West Melton, and Richard R. Calusinski, St. Agnes, both of Australia, assignors to Ralph McKay Limited, Maidstone, Australia
Filed May 6, 1985, Ser. No. 730,999
Claims priority, application Australia, Jan. 31, 1985, 0223/85; Jan. 31, 1985, 0224/85
Term of patent 14 years
U.S. Cl. D8—392

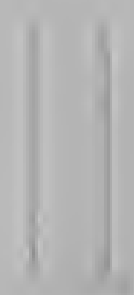


296,663
DISPENSING CONTAINER
Arthur G. Rudick, Marietta; William S. Credle, Jr., and Bradley P. Baker, both of Stone Mountain, all of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.
Filed Apr. 17, 1985, Ser. No. 724,156
Term of patent 14 years

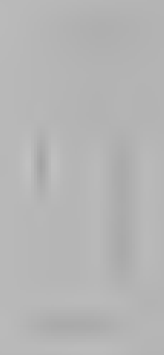
296,664
COMBINED DRINK CONTAINER AND STRAW
Per H. Hjalmarsson, Bjärred, Sweden, assignor to Tubex AB, Sweden
Filed Sep. 11, 1985, Ser. No. 774,654
Term of patent 14 years
S. Cl. D9—337



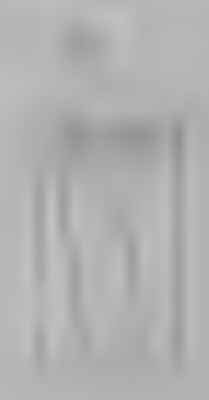
296,665
SMELLING BLOTTER STRIP HOLDER
Jean-Pierre Hofer, Cologny, Switzerland, assignor to Firmenich S.A., Geneva, Switzerland
Filed Aug. 6, 1985, Ser. No. 763,025
Claims priority, application World Int. Prop. O., Mar. 1, 1985, DM/004873
Term of patent 14 years
S. Cl. D9—353



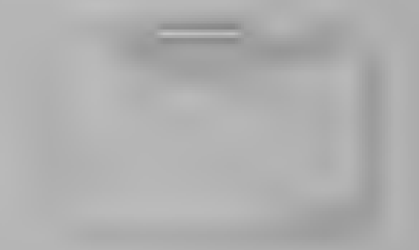
296,660
BOTTLE OR SIMILAR ARTICLE
John H. Hunt, St. Leonards, Australia, assignor to Field G
Research Pty. Ltd., Meadowbank, Australia
Filed Sep. 8, 1983, Ser. No. 530,228
Claims priority, application Australia, Mar. 9, 1983, 3
Term of patent 14 years



BOTTLE
Robert E. Salter, Mississauga, Canada, assignor to Ashland Inc., Ashland, Ky.
Filed Aug. 28, 1985, Ser. No. 770,123
1-03-85-10
Term of patent 14 years
U.S. Cl. D9—3



296,666
REAGENT CONTAINER OR SIMILAR AR
Leonard J. Stavish, New City, N.Y., assignor to Fish Company, Pittsburgh, Pa.
Filed Nov. 4, 1985, Ser. No. 803,763
Term of patent 14 years
U.S. Cl. D9—37



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296,669

BOTTLE

dwin F. Neu, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Sep. 16, 1985, Ser. No. 776,340

Term of patent 14 years

9—412

BOTTLE

. Gill, Burlington, Canada, assignor to The Procter & Company, Cincinnati, Ohio

Filed Oct. 11, 1985, Ser. No. 786,436

riority, application Canada, Apr. 30, 1985, 30-04-85-4

Term of patent 14 years

296,671

ORAGE CONTAINER FOR HYPODERMIC SYRINGES

lfred R. Jordan, 3765 Blake St., Denver, Colo. 80205

Filed Sep. 30, 1985, Ser. No. 782,082

Term of patent 14 years

19—4

296,672

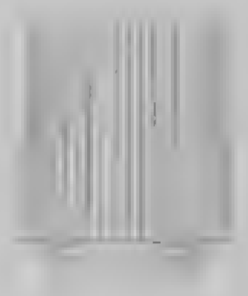
MEASURING CAP

Guy Bouthillier, Montreal, Canada, assignor to Lavo Limitee, Montreal, Canada

Filed Sep. 3, 1985, Ser. No. 771,666

Term of patent 14 years

U.S. Cl. D9—4



296,673

SHELL-SHAPED CLOCK

John C. S. Chen, Taipei, Taiwan, assignor to Iradw Ltd., Taipei, Taiwan

Filed Dec. 26, 1985, Ser. No. 813,395

Term of patent 14 years

U.S. Cl. D10—7

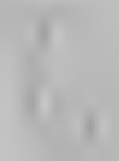
296,674

CLOCK

George M. Marx, and Vivian M. Marx, both of R 260, Monticello, Ind. 47690

Filed Aug. 30, 1985, Ser. No. 771,110

Term of patent 14 years



COMBINED WRISTWATCH AND CONTAINER

Lawrence T. Jones, Los Angeles, and Paul J. Ishikawa, Hermosa Beach, both of Calif., assignors to California R & D Center, Culver City, Calif.

Filed Jan. 27, 1986, Ser. No. 822,743

Term of patent 14 years

296,676

WRIST WATCH

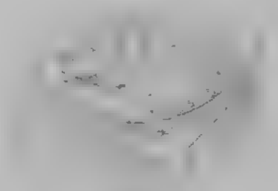
aac Sakurai, Higash-yamato, Japan, assignor to Casio puter Co., Ltd., Tokyo, Japan

Filed Oct. 23, 1985, Ser. No. 790,409

Claims priority, application Japan, May 14, 1985, 60-19816

Term of patent 14 years

10—39



296,677

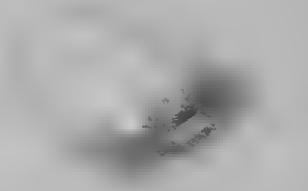
ANTLER HORN MOUNTING PANEL

nes P. Trueax, 3390 Hwy. 12 East, Helena, Mon

Filed Mar. 24, 1986, Ser. No. 845,795

Term of patent 14 years

1—135



296,678

WEB ADJUSTER

Allan R. Lortz, Carmel, and Jerry D. Bougher, Lebanon, both to Indiana Mills & Mfg. Co., Inc., Carmel, In

Filed Dec. 17, 1985, Ser. No. 810,874

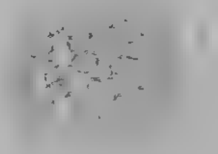
Term of patent 14 years

TIRE

Timothy J. Lassan, Kent, Ohio, a rich Tire Company, Akron, Ohio

Filed Dec. 13, 1984, Ser. No. 681,3

Term of patent 14 years



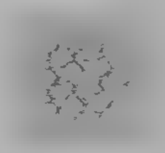
296,680

TIRE

Dennis W. Krupa, Kent, Ohio, assig rich Tire Company, Akron, Ohio

Filed Sep. 23, 1985, Se

Term of patent 1



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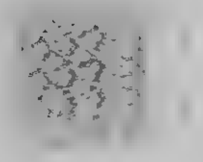
TIRE

ennis W. Krupa, Kent, and Richard J. Skerl, Barberton, both of Ohio, assignors to The Uniroyal Goodrich Tire Company, Akron, Ohio
Filed Sep. 27, 1985, Ser. No. 780,868
Term of patent 14 years
12—14

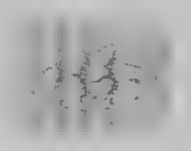


296,68
LLY MADE FOR TWO WH VEHICLES

anni Turchetti, and Michele Orlandi, both of Milan, Italy, assignors to Pirelli Coordinamento Pneumatici S.p.A., Italy
Filed Nov. 15, 1985, Ser. No. 805,212
Claims priority, application Italy, May 21, 1985, 21906 85[U]
Term of patent 14 years

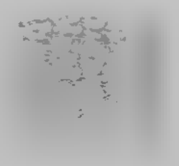
TIRE

Dennis W. Krupa, Kent, Ohio, assignor to The Uniroyal Goodrich Tire Company, Akron, Ohio
Filed Dec. 24, 1985, Ser. No. 813,135
Term of patent 14 years
U.S. Cl. D12—147



296,68
TIRE

Dennis W. Krupa, Kent, Ohio, assignor to The Uni rich Tire Company, Akron, Ohio
Filed Dec. 24, 1985, Ser. No. 813,126
Term of patent 14 years



BATTERY CHARGER

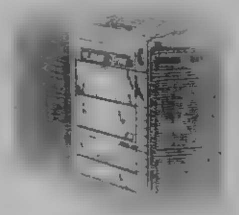
Toyomi Arita, Sumoto, Japan, assignor to Sanyo Electric Co., Ltd., Japan
Filed Jun. 19, 1985, Ser. No. 746,281
Claims priority, application Japan, Dec. 19, 1984, 59-52331
Term of patent 14 years
U.S. Cl. D13—5

296,686
FIRE STARTER

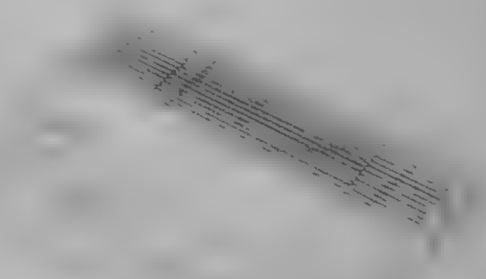
Janet A. Quillin, Fort Worth, Tex., assignor to Sherrill Stake Co., Inc., Irving, Tex.
Filed Jan. 13, 1986, Ser. No. 818,201
Term of patent 14 years

COMPACT DISC PL

Seung C. Lee, Seoul, Rep. of Korea, assignor to Go. Ltd., Seoul, Rep. of Korea
Filed Dec. 20, 1985, Ser. No. 811,34
Claims priority, application Rep. of Korea 8655/1985
Term of patent 14 years
U.S. Cl. D14

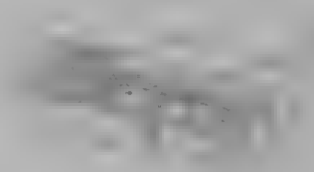


an Maliskas, Newtown, Conn., a tion Systems, Northlake, Ill.
Filed Dec. 23, 1985, Ser. No. 81
Term of patent 14 years



TELEPHONE ANSWERING MA

Masahiro Shintomi, Gunma, Japan, assignor t Co., Ltd., Japan
Filed Feb. 28, 1986, Ser. No. 838,026
Claims priority, application Japan, Sep. 2, 1985, 60
Term of patent 14 years



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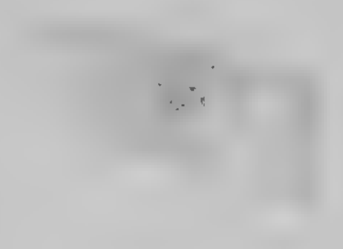
296,690
)MBINED CASSETTE TAPE RECOR
COMPACT DISC PLAYER
Bon H. Koo, Kyungki, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 27, 1985, Ser. No. 813,829

Claims priority, application Rep. of Korea, Jun. 29, 1985, 85-

Term of patent 14 years



296,691
MEGAPHONE
Tsutomu Tajima, Tokyo, Japan, assignor to Kabushiki Kaisha Tajima Sangyo, Tokyo, Japan

Filed Dec. 9, 1985, Ser. No. 806,689

Claims priority, application Japan, Jun. 14, 1985, 60-25151

Term of patent 14 years

D14—35

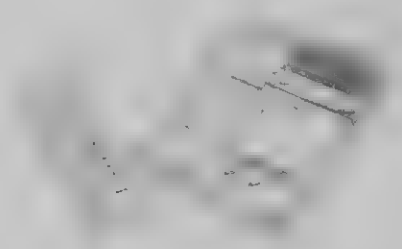
296,692
TELEPHONE INSTRUMENT SET
John Besford, Ewell, and Paul C. Appleby, London, both of England, assignors to British Telecommunications, London, England

Filed Sep. 22, 1986, Ser. No. 910,064

Claims priority, application United Kingdom, Mar. 26, 1986,

Term of patent 14 years

D14—53



296,693
TELEPHONE STAND
Charles B. Davidson, Croton-on-Hudson, N.Y., assignor to American Telephone and Telegraph Company and AT&T Technologies Inc., both of Murray Hill, N.J.

Filed Apr. 12, 1985, Ser. No. 722,54

Term of patent 14 years

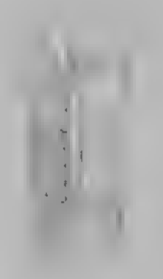
U.S. Cl. D14—60

296,694
PORTABLE RADIO TELEPHONE
Katsuhito Watanabe, Tokyo, Japan, assignor to Oki Electric Industry Co., Inc., Tokyo, Japan

Filed Jul. 23, 1986, Ser. No. 889,4

Term of patent 14 years

U.S. Cl. D14—64

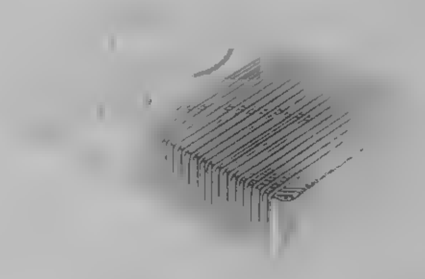


296,695
RADIO
Paul F. Siegel, Ridgefield, and Andrew Mark, Stamford, both of Conn., assignors to Salton, Inc., Deerfield, Ill.

Filed Jul. 12, 1985, Ser. No. 754,454

Term of patent 14 years

—68

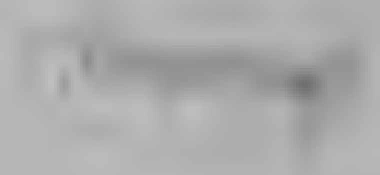


ENTRAL PROCESS
Kenji Yokoi, Matsudo; Shirou Hujimori, Kawada, Owariasahi, and Tetsurou Honma, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 26, 1985, Ser.

Claims priority, application Japan,

Term of patent 14



hama, both of Japan, assignors to Canon Kabushiki Tokyo, Japan

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U.S. Cl. D14—

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Peter J. King, 31 Morning Glory Driv Q. 4565, Australia

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DUST COVER FOR SEWING MACHINE

Oliado Baruffa, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland

Filed Jul. 19, 1985, Ser. No. 756,583

Claims priority, application Switzerland, Jan. 30, 1985, 114287

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D15—78

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TURRET CUTTING MACHINE

Masato Kooyama, Takasaki, Japan, assignor to Kyowa Industrial Co., Ltd., Gunma, Japan

Filed Feb. 14, 1985, Ser. No. 702,214

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INJECTION MOLDING PRESS FOR DISKS OR THE LIKE

Curt O. Lindell, Taby, Sweden, assignor to Toolex Alpha AB Sundbyberg, Sweden

Filed Aug. 14, 1985, Ser. No. 765,535

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U.S. Cl. D15—135

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BALL BEARING ARBOR

Herbert Gardner, 2808 Gardner Pl., Laporte, Colo. 80535

Filed Jul. 9, 1985, Ser. No. 753,154

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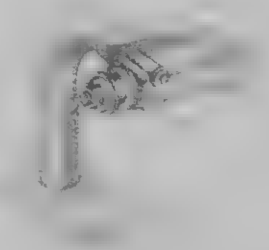

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Tetsuya Goto, Kanagawa, and Yoshihisa Minakawa, Chiba, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

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Lester H. Goins, Rte. 2, Box 804P, Connellys Springs, N

Filed Sep. 12, 1985, Ser. No. 775,323

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Doris E. Wells-Papanek; William L. Verplank, both of Menlo Park, and Norman L. Cox, Mountain view, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 28, 1985, Ser. No. 791,83

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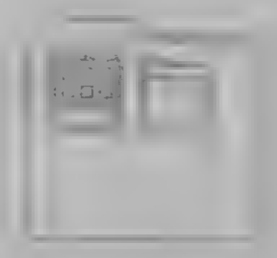

Dale M. Evans, Windsor, Wis., assignor DeForest, Wis.

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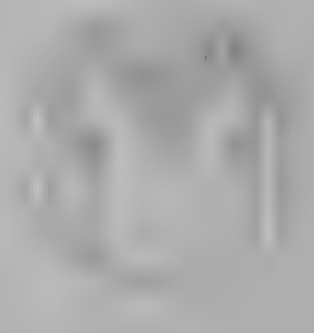
David J. Garrett, 156 Lightwoods Hill, Warl West Midlands B67 5ED, England

Filed Sep. 12, 1985, Ser. No. 775

Claims priority, application United Kingdom



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296,709
EXERCISE MACHINE
William Gvoich, 281 Rainbow Drive, Hamilton, Ontario, Canada L8K 4G3, and Ned Gvoich, 116 Irene Avenue, Stoney Creek, Ontario, Canada M6G 1M7
Filed Jun. 9, 1986, Ser. No. 872,443
Claims priority, application Canada, Jan

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oygan, Wis., assignor to Kohler Co., Kohler,

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vid E. Bronaugh; Alan F. Kessler; James J. Watson, all of Tyler, Tex., and Stephen P. Bartlett, London, England, assignors to American Standard Inc., New York, N.Y.
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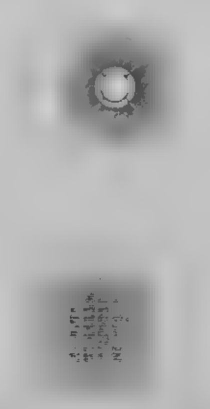

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Michael Porat, 52 Hamitnadev Street, Tel Aviv, and Amir Porat, 22 Rachvat Filan Street, Givat Shaul, Ramat Eilan, both of

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Lucien R. Downing, Columbus, Ohio, assignor to Cardinal Industries, Inc., Columbus, Ohio
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Lucien R. Downing, Columbus, Ohio, assignor to Cardinal Industries, Inc., Columbus, Ohio
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Point, N.Y., assignors to Lighting S

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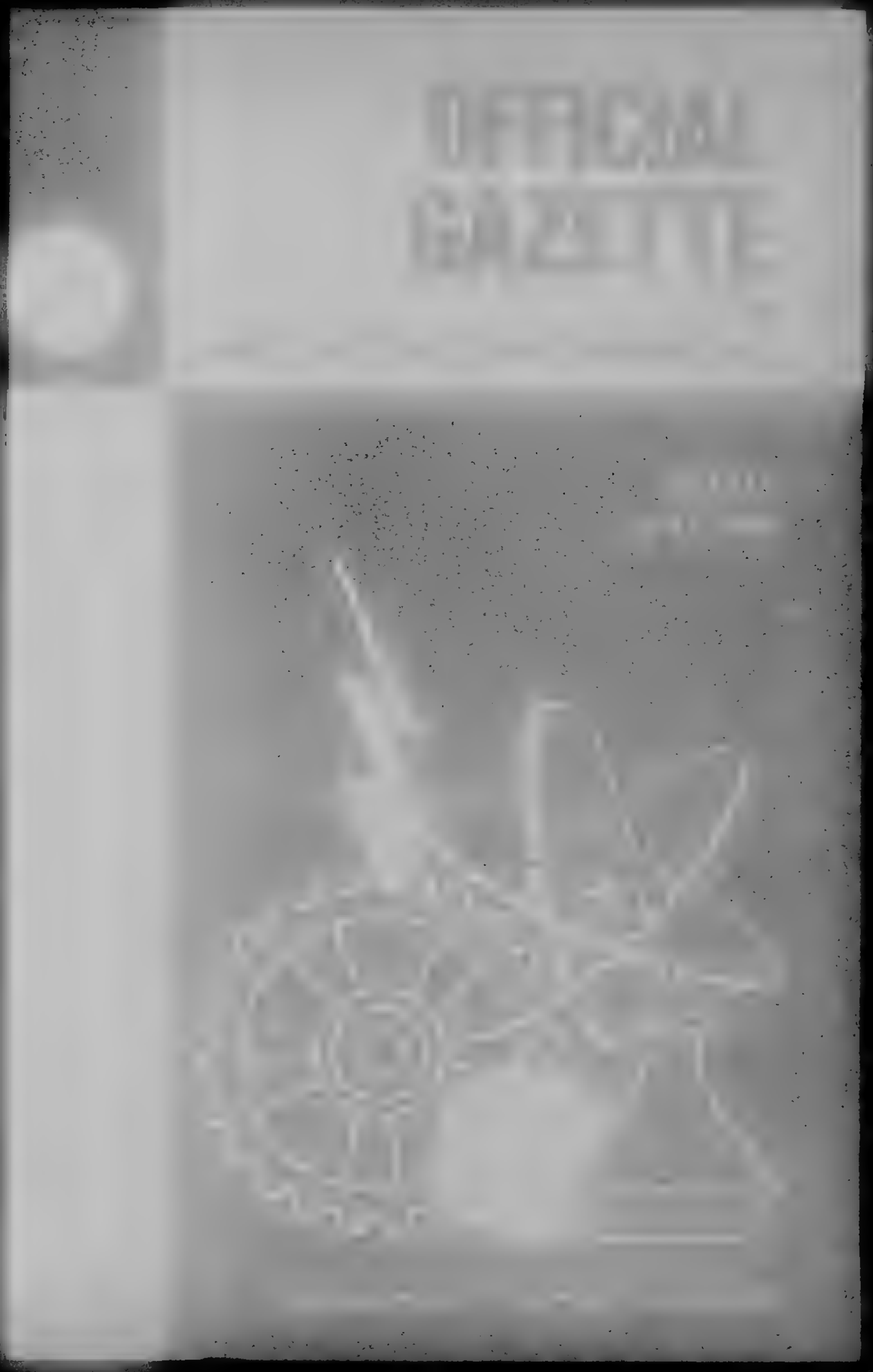

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St., New York, N.Y. 10019
James Robert, 549 W. 31st S

el B. Jr., P.O. Box 2907, Myrtle

Wilson, Waggonhals & Funes
700, 164 S. Union Blvd., La

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B1 3,916,268 (89th)

STORING INFORMATION AND PROVIDING AN ELECTRIC READOUT FROM A CONDUCTOR-INSULATOR-SEMICONDUCTOR STRUCTURE

William F. Engeler, Scotia, and Marvin Garfinkel, Schenectady, both of N.Y., assignors to General Electric Co., Schenectady, N.Y.

Reexamination Request No. 90/001,215, Apr. 9, 1987.

Reexamination Certificate for Patent No. 3,916,268, issued Oct. 28, 1975, Ser. No. 402,272, Oct. 1, 1973

Continuation-in-

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Shigeru Araki, Katano; Yasuo Taki, Hirakata; Kazuh Yoshihiko Misawa, both of Katano, and Souhei Hirakata, all of Japan, assignors to Matsushita dustrial Co., Ltd., Osaka, Japan

Reexamination Request No. 90/0

Reexamination Certificate for Patent

4, 1982, Ser. No. 115,279,

Claims priority, application Japan

VOL 1092 ISS 3 JL 19 1988 UMI

REPRODUCTI
IMPROVED RELIABILITY WITH RESPECT TO
RNALLY APPLIED VIBRATION OR IMPACT
Moriya, Neyagawa; Kazuharu Shiragami, and Hiroyuki
Yamaguchi, both of Hirakata, all of Japan, assignors to
ashita Electric Industrial Co., Ltd., Kadoma, Japan
Reexamination Request No. 90/001,399, Dec. 18, 198
Reexamination Certificate for Patent No. 4,692,915, issued Sep.
8, 1987, Ser. No. 738,464, May 28, 1985.
priority, application Japan, Jun. 15, 1984, 59-

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4,541,677, dated Sep. 17, 1985

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METHOD FOR THE [illegible]
N-METHYL-N-TRIMETHYLSI[illegible]
TRIFLUOROACETAMIDE

Toshio Shinohara, Takasaki, and Yoshifumi Inoue,
of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo,
Japan

Original No. 4,663,471, dated May 5, 1987, Ser. No. 896,29[illegible]
Aug. 14, 1986. Application for reissue Oct. 1[illegible]
[illegible]

Claims priority, application Japan, Aug. 20, 1985, 60-1827[illegible]
Int. Cl.⁴ C07F 7[illegible]

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4, [illegible]
TOILET TANK GASKET
[illegible] N. Grimstad, Sheboygan, Wis., [illegible]
[illegible], Wis.
Continuation of Ser. No. 831,097, Feb. 24, 1986, [illegible] which is a continuation of Ser. No. 689,710, Jan. 8, 1985, [illegible]ndoned. This application May 14, 1987, Ser. No. 54,135
Int. Cl.⁴ E03D 11/00
U.S. [illegible]—417 6 Claims

[illegible] sealing engage[illegible] [illegible] that has a tank [illegible]

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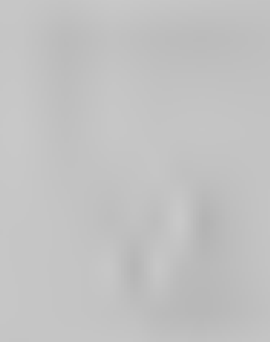

tion of Ser. No. 770,523
application Aug. 2
Int. Cl.4 A4

A hammock comprising a supporting structure adapted to
ort a hammock bed, said supporting structure comprising
nected together by an extension
f said main supporting rods being

dale, Simi Valley, Calif., assign
termattress Corporation, Anahe

ble "hammock effect"

4,757,56

ROTARY SCRUB BRUSH ASSEMBLY
FOR ASSEMBLING OF A ROTARY SC

George Sanchez, Chatsworth, Calif., assignor
ries Limited, Sydney, Australia
Filed Aug. 21, 1986, Ser. No. 899,33
Int. Cl.4 A46B 13/04

U.S. Cl. 15—29

15. A fluid driven rotary
plastic housing comprising

ES DRIVE MOTOR LOAD
inneapolis, and Joseph G. Kas

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4,757,569

MOVING STRIP

Fed. Rep. of Germany, assignors to Josef Frohling
Walzwerksmaschinenbau, Olpe, Fed. Rep. of Germany
Filed Mar. 6, 1986, Ser. No. 837,029
Claims priority, application Fed. Rep. of Germany,

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Manfred Haeusser, Moosbronner Strasse
renalb 3, and Konstantin Wolpalka, D-7506 Ba
both of Fed. Rep. of Germany
PCT No. PCT/EP86-00354, § 371 Date Feb. 18,
Date Feb. 18, 1987, PCT Pub. No. WO86/0
Date Dec. 31, 198
PCT Filed Jun. 14, 1986, Ser. No. 19

NAIL BRUSH

5333 N. 37th Ave., Phoenix, A
Apr. 18, 1986, Ser. No
Int. Cl.⁴ A46B 9/

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TO MOVABLE FLATS

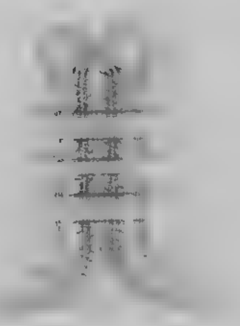
hn M. J. Varga, Halifax, England, assignor to
ealists (Canada) Ltd., Toronto, Canada
Filed May 17, 1982, Ser. No. 378

means associated with each end of each flat, each flat having a support member lying below the supporting face and secured the end of the flat, the support member including a downwardly facing support surface engageable with a bend of the carding engine and an upwardly facing top face, and the spacing means comprising shim means of individually selected thickness lying between the top face of the support member and the supporting face of the flat, and means securing the support member to the end of the flat with said shim means held in contact both with the top face of the support member and with the supporting face of the flat, each shim means being

FASTENING DEVICE FOR SPLICING BELTS
laude Jaubert, Rueil Malmaison, France, assignor to
outchouc Manufacture et Plastiques, Malmaison, France
Filed Oct. 30, 1986, Ser. No. 924,775
Claims priority, application France, Oct. 30, 1985, 851
Int. Cl.⁴ F16G 3/

4 Claims

ice for splicing belts composed of a rubber
forcement elements made of at least one of
ls, the fastening



l plate including at a base thereof a zon
near triangle designed to facilitate pas

LIDE FASTENER AND STR
SUPPORT
23 Warwick Rd. #1, Brookline
l Sep. 2, 1986, Ser. No. 903,21
Int. Cl.⁴ A44B 19/

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4,757,579
HEAD-RESTRAINT
Syuzo Nishino, Kyoto, and Naoki Mori
Japan, assignors to Ashimori Ind

b. 12, 1987, Ser
lication Japan, F

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Int. Cl.4 H01L 41/08

1. A method for mass-producing piezoelectric resonator chips from a wafer, said method comprising the steps of:

(a) forming an electrode pattern on upper and lower surfaces of the wafer, the electrode pattern comprising a strip-like first segment and a plurality of tooth-like second segments projecting perpendicularly from one side of the first segment, the first and second segments forming a comb-shape, the first segments on the upper and lower surfaces of the wafer facing each other through the wafer, and a projection direction of the second segments with respect to the first segment on the upper surface being opposite that of the second segments on the lower surface of the wafer; and

(b) cutting the wafer into a plurality of rectangular parallelpiped chips having an upper main surface and a lower main surface, a longitudinal direction of the chip being the projection direction of the second segments, and the first segments being transversely located at a center of each chip.

4,757,582

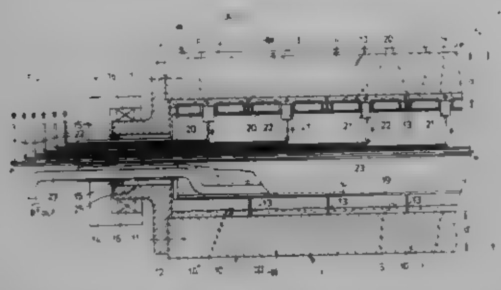
ROLL WITH HEATED MANTLE AND METHOD

Matti Verkasalo, Jyvaskyla, Finland, assignor to Valmet Oy, [redacted]

Continuation-in-part of Ser. No. 718,099, Apr. 1, 1985, abandoned. This application Feb. 10, 1987, Ser. No. 12,848

Int. Cl.4 B30B *3/00;* **D21F** *11/00*

U.S. Cl. 29—116.2 **37 Claims**



1. A method for controlling the thickness profile of a web passing through a nip formed between two rolls, one of the rolls including a stationary shaft having an outer surface and a rotatable hollow mantle having an inner surface spaced from

[illegible] rolling the tem[illegible]

[illegible]sired thickness profile of the web, such that the diameter of axial regions of the roll mantle corresponding to the axial inner surface sections which are in heat transfer relationship with the heat transfer liquid sections expand or contract by thermal expansion or contraction,

the extent of expansion or contraction of the diameter of each axial roll mantle region determined by the temperature of the heat transfer liquid section corresponding thereto

17. A roll for use in controlling the thickness profile of a paper web passing through a calendering nip formed by said roll and a counter-roll, comprising

a cylindrical outer mantle rotatably mounted at its axial ends, said mantle having inner and outer surfaces,

a stationary shaft situated within said mantle;

means for forming a layer of heat transfer liquid on said inner surface of said mantle;

partition means connected to said inner surface of said mantle for dividing said liquid layer into a plurality of separate annular sections in the axial direction of said roll mantle, said sections of heat transfer liquid being in heat transfer relationship with corresponding axial regions of said roll mantle;

means for controlling the temperature of the heat transfer liquid layer of each of said sections;

the diameter of each of said axial roll mantle regions being thermally expandable or contractable based upon heat transferred between each heat transfer liquid section and corresponding roll mantle region,

whereby pressure applied in said nip is adjustable over the axial direction thereof, based upon changes in said roll diameter effected by said temperature controlling means, and

the thickness profile of the web passing through the nip being thus controlled by the axial pressure profile applied in the nip.

4,757,583

ROLL FOR USE IN CALENDERS AND THE LIKE

Josef Pav; Reinhard Wenzel, and Richard Rauf, all of Krefeld, Fed. Rep. of Germany, assignors to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

Filed Nov. 6, 1986, Ser. No. 927,808

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1985, 3539428

Int. Cl.4 B21B *27/00*

U.S. Cl. 29—116.1 **26 Claims**

1. An assembly for treating running webs, particularly for use in calenders and the like, comprising a roll including an elongated carrier; means for non-rotatably supporting said carrier; a hollow deformable rotary cylindrical shell surrounding said carrier; hydrostatic bearing means interposed betwen said carrier and said shell; and first and second bearings interposed between said shell and said carrier and flanking said bearing means, each of said bearings including an annular bearing member non-rotatably mounted on and surrounding said carrier and movable relative to said carrier radially of said shell, said shell having end portions which at least partially surround said bearing members, each of said bearing members and said carrier defining an annular clearance, means for sealing said clearances from the atmosphere including substantially radially inwardly extending collars provided on said bearing

tive bearing members, a source of pressurized fluid, and means for admitting the fluid from said source into at least one selected chamber of each of said pluralities of chambers.

4,757,584

ROLL FOR USE IN CALENDERS AND THE LIKE

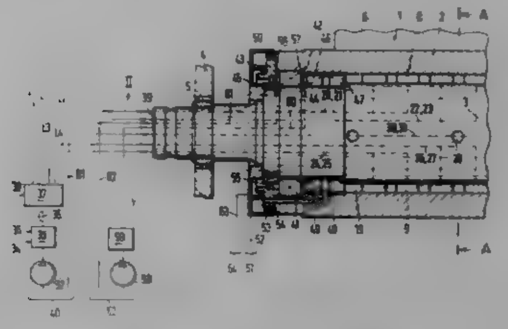
Josef Pav; Richard Rauf, and Reinhard Wenzel, all of Krefeld, Fed. Rep. of Germany, assignors to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 888,115, Jul. 18, 1986, abandoned. This application Apr. 29, 1987, Ser. No. 44,334

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1985, 3526283

Int. Cl.4 B21B *13/02, 31/32*

U.S. Cl. 29—116.1 **27 Claims**



1. A pressure applying roll for use in calenders and the like, comprising a carrier; a flexible rotary cylindrical shell spacedly surrounding said carrier; hydraulic displacing means interposed between said carrier and said shell and operable to displace selected portions of said shell relative to said carrier; a source of heated hydraulic fluid; first supplying means for supplying fluid from said source to said displacing means; an antifriction bearing interposed in said shell between said carrier and said shell; a second fluid containing source of lubricant; second supplying means for supplying lubricant from said second source to said bearing; and sealing means interposed between said carrier and said shell intermediate said bearing and said displacing means to prevent or to reduce interaction between the lubricant and the fluid, said sealing means comprising a first sealing element nearer to said bearing than to said displacing means and arranged to oppose the flow of lubricant from said bearing toward said displacing means and a second sealing element nearer to said displacing means than to said bearing and arranged to oppose the flow of fluid toward said bearing.

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1. A variable-crown roll for forming a nip with a counter-roll, comprising:

a rotatably mounted hollow roll mantle having opposite ends and an inner surface;

a fixed central axle situated within said roll mantle and having a main axle portion and a pair of opposite end portions, said inner surface of said roll mantle and an outer surface of at least said main axle portion defining a space between them:

means situated within said space defined between said roll mantle inner surface and said outer surface of said main axle portion for adjusting the profile of the nip formed between the variable-crown roll and said counter-roll;

bearing means for rotatably mounting said roll mantle on said fixed central axle at regions proximate to said mantle ends, said bearing means including at least one roll mantle bearing provided between each of said opposite end portions of said central axle and said roll mantle or an extension thereof;

means for supporting said fixed central axle at outer regions of said end portions thereof which are situated axially outside of said roll mantle bearing means;

an annular member provided between each of said central axle end portions and a respective one of said at least one roll mantle bearing;

hydraulic power means adapted to be coupled to a source of pressurized hydraulic fluid and situated between each of said annular members and a respective one of said central axle end portions for at least partially generating the forces loading the nip and for displacing said roll mantle relative to its central axis to open and close the nips; and

means situated within said roll mantle and between said roll mantle bearing means for producing compensation moments of adjustable magnitude acting on end regions of said roll mantle, the magnitude of said compensation moments being adjustable to a level that the roll mantles of the variable-crown roll and counter-roll have substantially identically shaped bending lines at the nip formed thereby.

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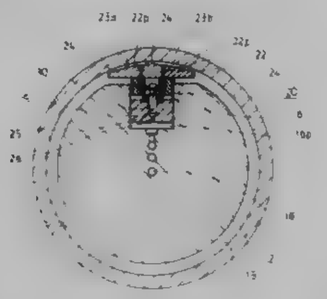
4,757,586
GLIDE-SHOE ARRANGEMENT FOR A VARIABLE-CROWN ROLL

Juhani Niskanen, Jyväskylä, Finland, assignor to Valmet Oy, [illegible]

Filed Apr. 14, 1987, Ser. No. 38,222
Claims priority, application Finland, Apr. 16, 1986, 861612
Int. Cl.⁴ B21B *27/00*
U.S. Cl. 29—116.2 16 Claims



1. A glide shoe arrangement for a variable crown roll comprising a non-rotating central axle on which a substantially cylindrical roll mantle is rotatably journalled, at least one piston-glide shoe combination fitted between the axle and an inner face of the roll mantle and including a loaded piston and a glide shoe adapted to be loaded against the inner face of the roll mantle by hydraulic pressure acting on said piston for controlling distribution of pressure in a nip facing the glide shoe, said piston-glide shoe combination including a cylinder bore formed in the axle into which the loading piston is fitted, wherein

- a bearing is situated between the piston and glide shoe having a substantially spherical bearing face, the center of curvature thereof being situated on the glide shoe side of said bearing,
- a pin-shaped projection is fitted in the loading piston and extends through the bearing,
- a sealing articulation arrangement is situated between said pin-shaped projection and one of said glide shoe and a projecting portion thereof, and

hydraulic pressure fluid passage means for providing communication between a loading space defined by said piston and cylinder bore through said pin-shaped projection and into a hydrostatic lubrication space on the glide shoe facing the inner face of the roll mantle.

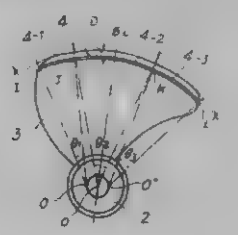
4,757,587
PROPELLER CONSTRUCTION OF AN ELECTRIC FAN

Hyung M. Choi, Seoul, Rep. of Korea, assignor to Gold Star Co., Ltd., Seoul, Rep. of Korea

Filed Nov. 6, 1986, Ser. No. 927,500
Claims priority, application Rep. of Korea, Mar. 28, 1986, [illegible]
Int. Cl.⁴ B21K *3/00*
U.S. Cl. 29—156.8 P 4 Claims

1. A fan assembly comprising a propeller fixedly mounted on a shaft having a center line,

- said propeller having a rear side where fluid enters and a front side where fluid exits,
- said propeller including a plurality of blades,
- each of said blades having an arcuate rib located on the front side thereof,
- each said arcuate rib being made of first, second and third curved portions integrally formed together,
- said second curved portion being formed as an arc about said center line,
- said first curved portion being formed as an arc about a first line parallel to said center line and located on one side of said center line, and

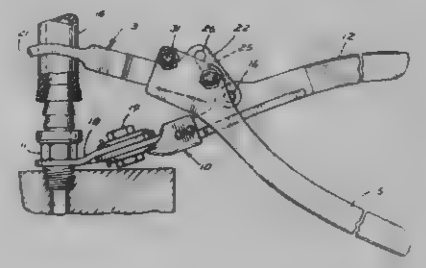


- said third curved portion being formed as an arc about a second line parallel to said center line and located on the opposite side of said center line from said first line.

4,757,588
PUSH-ON HOSE PLIERS

Ljudo Churchich, 1777 Agate St., Maplewood, Minn. 55117

Filed May 15, 1987, Ser. No. 50,042
Int. Cl.⁴ F16L *35/00*
U.S. Cl. 29—235 9 Claims



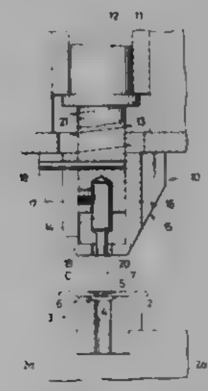
1. A push-on hose pliers for assembling hose and hose fittings which comprises:

- (A) a first jaw assembly adapted to engage a hose fitting and comprised of:
  - (1) a fixed jaw member rigidly supported at one end of a first elongated handle,
  - (2) a pivoted movable fitting jaw member cooperatively associated with said fixed jaw member,
  - (3) face-to-face arcuate fitting-grasping jaw recesses in said fixed and movable jaw members to grasp the body of a hose fitting, and
  - (4) spring biasing means urging the jaw members together,
- (B) a second jaw assembly comprised of a pair of relatively movable jaw members adapted to squeezably engage a hose to be pushed onto said fitting spaced from the end of the hose, said second jaw assembly being supported at one end of a second elongated handle, the centers of the jaws of said jaw assemblies being in approximately longitudinal alignment, and
- (C) a pivotal connection between said handles spaced from the jaw assemblies, whereby, in a pincer movement, the jaw assemblies are moved toward one another upon movement toward one another of the opposite ends of the handles.

4,757,589
APPARATUS FOR REMOVING FASTENER MEMBERS FROM A GARMENT FABRIC

Katsufumi Nakano, Kurobe, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Aug. 25, 1986, Ser. No. 899,892
Claims priority, application Japan, Aug. 30, 1985, 60-[illegible][U]
Int. Cl.⁴ B25C *7/00*
U.S. Cl. 29—243.5 1 Claim



1. An apparatus having means for removing fastener members from a garment fabric, said means comprising:

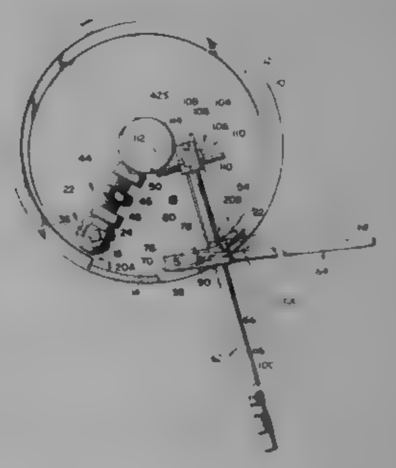
- (a) a stationary die for supporting on its top end surface the fastener members and having a vertical hole opening to said top end surface, said top end surface having a recess surrounding said hole;
- (b) a punch holder disposed above said die and vertically movable toward and away from said die;
- (c) a punch mounted on a lower end of said punch holder and movable, in response to the vertical movements of said punch holder, into and out of said hole of said die for punching the fastener members supported on said die and causing a scrap-piece of the punched fastener members to be stuck to said punch; and
- (d) a scrap-piece removal member carried on said punch holder around said punch including a cylindrical wall having at its lower end an inwardly directed annular flange defining a central aperture through which said punch is projectable from and is retractable into said scrap-piece removal member, said scrap-piece removal member being normally urged by a spring for downward movement of said scrap-piece removal member relative to upward movement of said punch holder and hence said punch, said cylindrical wall having a vertical slot slidably receiving a stop pin mounted on said punch holder for restricting the downward movement of said scrap-piece removal member relative to said punch holder and hence said punch, a lower end surface of said punch being no lower than substantially flush with a lower surface of said annular flange when said stop pin is disposed at an upper end of said vertical slot of said cylindrical wall for removing the scrap-piece which is stuck to said punch as a result of the above-mentioned punching.

4,757,590
METHOD AND APPARATUS FOR REMOVING SNAP RINGS

Norman P. Hull, and Norman D. Hull, both of 479 S. Dudley St., Lakewood, Colo. 80226

Filed Nov. 10, 1986, Ser. No. 928,829
Int. Cl.⁴ B23P *19/04*
U.S. Cl. 29—426.6 10 Claims

1. The multiple-tool apparatus for removing lugless snap rings from the internal annular grooves provided therefor in parts containing cylindrical bores which comprises: means for indenting the groove intermediate the ends of the snap ring to receive a ball, a ball for seating in the groove indentation, means for driving the ring around in its groove to a position where one end thereof has raised up upon the ball seated in the

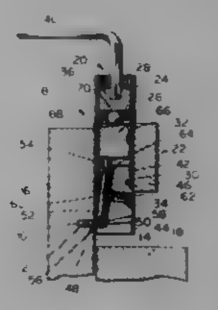


indentation to create a gap therebeneath, a wedge for insertion into the gap, means for securing the ring non-rotatably within its groove, and means for driving the wedge into the gap beneath the raised end of the ring as so to pry the latter free of its groove.

4,757,591
[illegible] SAME

Norman P. Hull, and Norman D. Hull, both of 479 S. Dudley St., Lakewood, Colo. 80226

Filed Nov. 10, 1986, Ser. No. 928,836
Int. Cl.⁴ B23P *19/04*
U.S. Cl. 29—426.6 9 Claims



1. An extracting tool for removing snap rings from an internal annular groove contained within the bore of a workplace which comprises: means including a cylindrical outer surface for detachably clamping onto a surface of a snap ring exposed outside the groove housing same, means for camming the ring thus clamped out of the groove comprising a collar having a bore sized to receive the cylindrical surface of the clamping [illegible] surface bordering the latter, said cam surface being shaped and adapted upon rotation thereof to push said collar away from the workpiece bore, and means for rotating the cam surface of said collar against the bore of the workpiece without turning the clamping means so as to pull the latter together with the ring clamped therein away from the slot.

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4,757,592

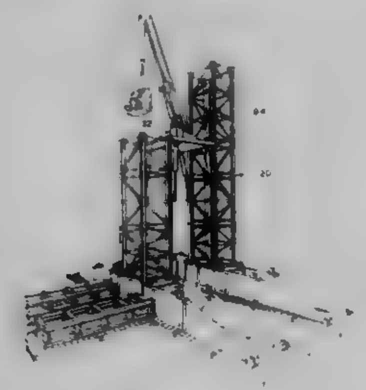
METHOD OF ERECTING A PORTABLE DRILLING RIG

Lowell M. Reed, Moore, Okla. 73165, assignor to Parco Mast and Substructures, Inc., Del City, Okla.

Filed Sep. 8, 1986, Ser. No. 904,608

Int. Cl.⁴ B21D *39/00*

U.S. Cl. 29—429 6 Claims



1. A method of erecting a drilling derrick from a plurality of column sections, each section having four parallel legs of equal length and rigidly held together by bracing using a jacking crane having a platform and a plurality of hydraulic cylinders with extension rods having feet which comprises:

(a) providing a substructure;
(b) attaching a first column section to said subsection;
(c) attaching a second column section to said subsection at a position thereon such that said first and second columns are spaced apart and are parallel;
(d) securing two feet of said jacking crane to said first section and attaching another two legs of said jacking crane to said second section;
(e) lifting a third section by said jacking crane to the top of said first section and attaching the two together;
(f) lifting a fourth section by said jacking crane to the top of said second section and attaching the two together;
(g) jacking said jacking crane upward by extending said piston extensions;
(h) attaching the jacking crane platform to the top of said third and fourth sections;
(i) detaching said feet from said first and said second sections;
(j) detracting said piston extensions and attaching said first two feet to said third section and said second two feet to said fourth section;
(k) repeating steps (a) through (j) until the two columns have reached their selected height;

retaining said jacking crane at the top of said columns.

4,757,593

METHOD OF LOCKING A CONNECTOR

Joseph W. Pallini, Jr., and Lionel J. Milberger, both of Houston, Tex., assignors to Vetco Gray Inc, Houston, Tex.

Division of Ser. No. 841,655, Mar. 20, 1986, Pat. No. 4,711,471.

This application Mar. 27, 1987, Ser. No. 32,139

Int. Cl.⁴ B23P *11/00*

U.S. Cl. 29—432 7 Claims

1. A method of locking a connector together, said connector comprising a box and a pin,

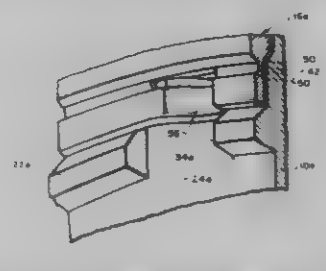
forming threads on said box and said pin such that, when the box and pin are threaded together, the box overlaps the pin,

forming a thin wall on said box parallel to the open end of the box before making up said connector, forming an internal and an external peripheral groove on the thin wall of the box below the threads to thin the wall of the box,

forming at least one pin slot on said pin,

making up said connector by interengaging said threads without reguard to the location of said pin slot,

radially shearing the thin wall of the box, after interengaging said threads, at a location adjacent said pin slot in a predetermined pattern whereby said pattern of shear forms a shear portion which extends a selected length of said thin wall and terminates at one end in a shear which is transverse to said thin wall and terminates at the other end in a curved shear and a shorter parallel shear and urging the sheared portion into the said pin slot.



4,757,594

METHOD OF PROVIDING THE INNER SIDE OF A NECK OPENING OF A VESSEL WITH A SYNTHETIC SLEEVE

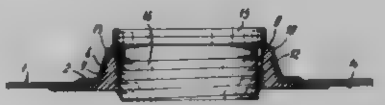
Herman P. Kars, Uithoorn, and Willem F. Kors, Woubrugge, both of Netherlands, assignors to Koninklijke Emballage Industrie van Leer B.V., Amstelveen, Netherlands

Filed Jul. 14, 1986, Ser. No. 884,972

Claims priority, application Netherlands, Jul. 18, 1985, 8502073

Int. Cl.⁴ B23P *11/02*

U.S. Cl. 29—447 8 Claims



1. A method of providing the inner side of a neck with a synthetic sleeve comprising:

forming a neck (3) with a desired inner diameter and length from an outwardly bent edge of an opening in a wall of a vessel,

forming a sleeve (7) with an outer collar (8) at one end thereof, said outer collar (8) having an outer surface which is in the shape of a truncated cone, a smallest diameter of which is disposed at an outer end of said sleeve (7) and is smaller than said inner diameter of said neck (3), a largest diameter of which is turned away from the collar (8) and is formed so as to have an outwardly turned flange (6) which is displaced from the collar (8) a distance equal to or smaller than the length of the neck (3), said largest diameter being larger than said inner diameter of said neck (3),

heating said sleeve (7), and

pressing said sleeve (7) in its heated state into and through the neck (3) until said collar (8) snaps outwardly over an outer end of said neck (3).

4,757,595

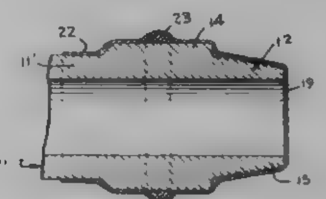
PROCESS FOR PROTECTING ENDS OF OIL FIELD TUBULAR PRODUCTS

Camille M. Fraering, Jr., New Iberia, La., assignor to Asgard Corporation, New Iberia, La.

Filed Mar. 2, 1987, Ser. No. 20,877

Int. Cl.⁴ B23P *11/02*

U.S. Cl. 29—447 19 Claims



1. The method of protecting threaded, cut or machined ends of oil field tubular elongated hollow cylindrical articles or the like against rust, pitting, moisture induced corrosion damage and adverse weather condition during outdoor storage thereof preparatory to field use, wherein the elongated tubular cylindrical articles each have machined end surface portions forming threaded coupling ends or the like, comprising coating machined end portions of each of the tubular articles with a grease-like protective compound over all of the machined surface portions thereof, enshrouding the grease-coated machined surface portions thereof at each end in a respective shrinkable plastic film bag having a closed end bottom wall portion and side walls joined thereto throughout the perimeter of the bottom wall portion, said side walls extending for a length axially of the tubular articles greater than the axial distance spanned by said machined and coated surfaces and to extend inwardly beyond the machined surfaces onto uncoated adjoining exterior cylindrical surface portions of the tubular article, and heat shrinking the shrinkable plastic film bag at each end of the tubular article in situ to form an air-tight shrink wrap film enclosure enveloping the machined and coated surface portions in substantially conforming relation to the exterior surface configuration of the respective enshrouded end portion of the tubular article and tightly embracing in moisture sealing relation said exterior cylindrical surface portions thereof.

4,757,596

RIVET

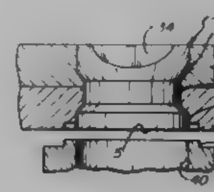
Eugen Herb, Ditzingen, Fed. Rep. of Germany, assignor to Trumpf Grusch AG, Grusch, Switzerland

Filed Dec. 19, 1986, Ser. No. 944,839

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1985, 3545655

Int. Cl.⁴ B23P *11/00;* **F16B** *19/08*

U.S. Cl. 29—524.1 11 Claims



1. A rivet having (i) a head, and (ii) an elongated shank of a generally circular cross section extending axially therefrom, said head having a periphery including a multiplicity of spaced laterally extending portions projecting radially outwardly from the periphery of said shank and a multiplicity of guide portions between the axially extending side margins of adjacent projecting portions and providing generally rectilinear guide surfaces extending axially of said rivet with a point along said guide surfaces being disposed in substantially axial alignment with the periphery of said shank, said guide surfaces including at least one pair of opposed parallel surfaces enabling alignment of a multiplicity of rivets for movement in horizontal direction within an associated feed mechanism.

4,757,597

METHOD OF ASSEMBLING A FRICTION CLUTCH

Helmut Kohler, Bühlertal, Fed. Rep. of Germany, assignor to Luk Lamellen und Kupplungsbau GmbH, Bühl, Fed. Rep. of Germany

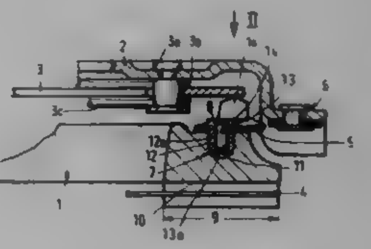
Division of Ser. No. 509,190, Jun. 29, 1983, Pat. No. 4,615,424.

This application Aug. 15, 1986, Ser. No. 897,106

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1982, 3224404

Int. Cl.⁴ B23P *11/02*

U.S. Cl. 29—523 8 Claims



1. A method of establishing a torque transmitting connection between substantially coaxial rotary first and second components in a friction clutch wherein one of the components is movable axially of the other of the components and the transmission of torque takes place by way of at least one coupling member, comprising the steps of affixing a first portion of the coupling member to the first component; providing a surface of the second component with a blind bore; forming a second portion of the coupling member with an opening and placing the second portion into a position of overlap with the surface of the second component so that the opening registers with the blind bore while a side of the second portion of the coupling member faces away from the surface of the second component; and fastening the second portion of the coupling member to the second component by means of a metallic connecting element, including passing the connecting element through the opening so that a first portion of the connecting element is received in the blind bore and an end portion of the connecting element extends beyond the side of the coupling member, at-least partially expanding the first portion of the connecting element radially of the blind bore so that the first portion of the connecting element is anchored in the second component, and causing the end portion of the connecting element to overlie the side of the second portion of the coupling member in the region of the opening to thereby hold the second portion of the coupling member against movement away from the surface of the second component.

4,757,598

TWO SPEED TRANSMISSION FOR POWER DRIVEN THREADING MACHINE

James C. Redman, Amherst, Ohio, assignor to Emerson Electric Co., St. Louis, Mo.

Filed Nov. 23, 1987, Ser. No. 123,717

Int. Cl.⁴ B23G *1/22;* **B23P** *23/00*

U.S. Cl. 29—560 27 Claims

1. A power driven threading machine comprising, base means, rotatable chuck means having an axis and axially opposite ends, jaw means at said opposite ends of said chuck means

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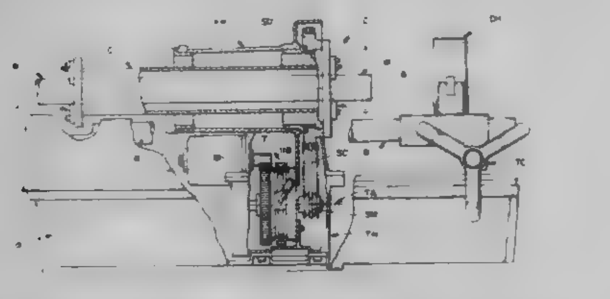
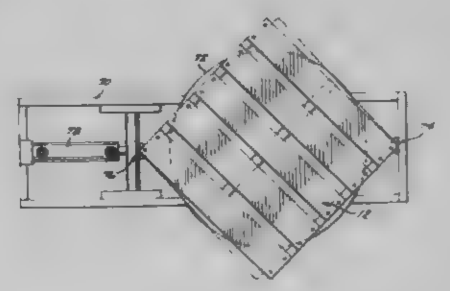
for gripping a workpiece, said chuck means being supported on said base means for rotation about said chuck axis, and means including transmission means for driving said chuck means in a threading direction about said chuck axis and selectively at two different speeds, said transmission means having an axis and including input means, output means and planetary gear means therebetween, said planetary gear means including sun gear means coaxial with said transmission axis and connected to one of said input and output means, ring gear means coaxial with said sun gear means, and planet gear means coaxial with said sun gear means, said planet gear means being radially between said sun gear means and said ring gear means and connected to the other of said input and output means, said ring gear means being axially shiftable relative to said sun gear means and planet gear means between first and second positions, first clutch means interengaging said ring gear means and sun gear means in said first position of said ring gear means for rotation together, whereby said planet gear means rotate therewith and said output means is driven at a first speed, second clutch means engaging said ring gear means in said second position thereof against rotation with said sun gear means whereby said planet gear means rotates relative to said sun gear means and said ring gear means and said output means is driven at a second speed different from said first speed, means connecting said output means to said chuck means, and means to selectively shift said ring gear means between said first and second positions.

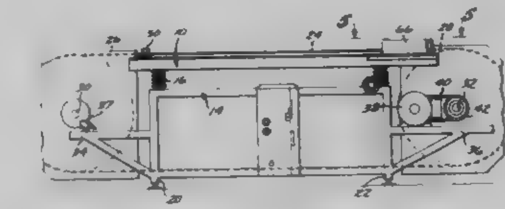


4,757,599
PALLET DISMANTLER

Marvin L. Bone, 4161 Keever Ave., Long Beach, Calif. 90807
Filed Aug. 22, 1986, Ser. No. 899,418
Int. Cl.⁴ B23P *19/04;* **B27M** *3/00*
U.S. Cl. 29—564.3 5 Claims

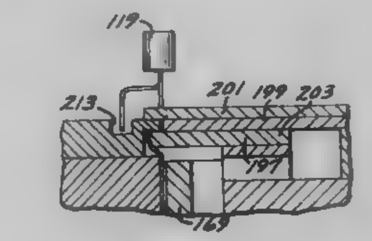
5. A pallet board loosening and cutting machine which includes:
- a rotatable table upon which a pallet of the type having
- a base frame with top and bottom stringers nailed thereto is to be placed:
- one pair only of pallet engaging means disposed on opposite sides of said table, spaced and adapted to hold the opposite corners diagonally, of a pallet placed therein on top of said table, wherein at least one of said engaging means is movable toward said other diagonally positioned, across an engaged pallet, opposite engaging means;
- high-powered quickly-actuated hydraulic ram pressing means connected with at least one of said movable pallet engaging means adapted to quickly push it toward said other engaging means so as to squeeze a pallet held therein diagonally thereby causing twisting of its alignment such an amount that stringers thereon are lifted from the base frame enough to expose the nails sufficiently that a band saw blade can be inserted between the stringers and base frame of a pallet;
- in combination with a denailer type cutting machine which includes a flat, not-recessed, cutting surface for receiving pallets; band saw cutting means wherein the teeth thereof are angled uniformly the same direction, interrupted and pointed and said band saw is positioned parallel to and above said cutting surface at the height of the bottom board of a pallet so as to be able to cut into the nails securing the stringers of a pallet to the base thereof; and driving means engaging said band saw which moves it opposite from its normal cutting direction and, instead, in the direction of the angled cutting teeth so that when it bears against the nails of the stringer attaching it to a pallet, it melts said nails to produce a smooth surface when cut.





4,757,600
RADIAL LEAD ELECTRICAL COMPONENT FEEDER

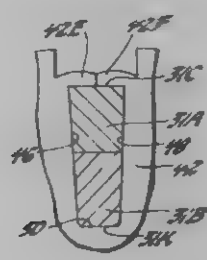
Gregory W. Holcomb, 13 Viento, Irvine, Calif. 92714
Filed Jul. 27, 1987, Ser. No. 78,111
Int. Cl.⁴ B23P *23/00;* **H01R** *43/00*
U.S. Cl. 29—566.3 18 Claims



1. A component lead cutting and forming apparatus for radial lead electrical components secured to tape, comprising:
- means for sequentially positioning each of the electrical components at first and second stations;
- first clamping means located at said first station for strain relief clamping a selected component lead of an electrical component positioned at said first station to prevent stresses on the component;
- cutting and forming means cooperating with said first clamping means for cutting and forming said selected lead of the electrical component positioned at said first station;
- second clamping means located at said second station for strain relief clamping a selected component lead of an electrical component located at said second station to prevent stresses on the component; and
- cutting means cooperating with said second clamping means for cutting said selected lead of the electrical component positioned at said second station.

4,757,601
CONNECTION OF TAPERED ARMATURE CONDUCTOR WITH TAPERED COMMUTATOR SLOT

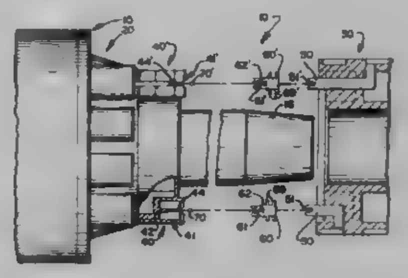
Howard E. Leech, and Terry J. Pahls, both of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Apr. 24, 1985, Ser. No. 726,656
Int. Cl.⁴ H01R *43/04*
U.S. Cl. 29—597 5 Claims



1. A method of connecting the ends of upper and lower armature conductors to a commutator bar, the steps comprising, forming portions of the ends of said upper and lower armature conductors into a generally wedged-shaped configuration such that respective, opposed side surfaces of the formed conductor portions of both armature conductors are aligned and tapered radially inwardly at the same angle, then positioning a commutator bar that has a slot that is defined by a bottom surface and opposed internal tapered surfaces that are complementary to the tapered surfaces of the formed conductor portions such that the open end of the slot is aligned with the formed conductor portions, forcing the formed conductor portions into the slot to such a depth that a lower surface of the formed conductor portion of said lower conductor engages said bottom surface of said slot and to such a depth that there is an interference fit between the tapered surfaces of the formed conductor portions and the internal tapered surfaces of the slot whereby the formed conductor portions are taper locked to the internal walls of the slot, and then staking portions of the commutator bar located adjacent the outer end of the slot into engagement with the formed conductor portion of said upper conductor.

4,757,602
METHOD FOR INSTALLING A COLLECTOR RING ASSEMBLY

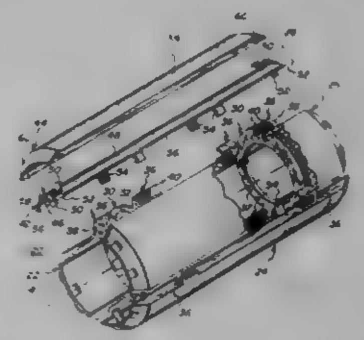
Rickie A. Evenson, Ham Lake, Minn., assignor to Onan Corporation, Minneapolis, Minn.
Filed Mar. 6, 1987, Ser. No. 22,781
Int. Cl.⁴ H01R *43/06, 43/10;* **H02K** *15/02*
U.S. Cl. 29—597 6 Claims



1. A method of installing a collector ring onto a rotor and terminating a collector ring lead comprising the steps of:
- (a) providing a rotor having a receiving means for receiving a collector ring lead, a rotor winding wire, and a terminal [illegible]
- (b) inserting a rotor winding wire into the receiving means;
- (c) inserting a terminal means for electrically connecting a collector ring lead and the wire into said receiving means such that the terminal means electrically contacts the wire;
- (d) providing a collector ring having a collector ring lead structurally and electrically interconnected thereto; and
- (e) inserting the collector ring lead into the terminal means and the receiving means so that the collector ring lead makes electrical contact with the terminal means and the wire and the collector ring is structurally connected to the rotor.

4,757,603
METHOD OF MAKING A REINFORCED ROTOR ASSEMBLY

Vijay K. Stokes, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 866,527, May 23, 1986, Pat. No. 4,683,393. This application May 4, 1987, Ser. No. 45,988
Int. Cl.⁴ H02K *15/02, 15/14*
U.S. Cl. 29—598 11 Claims



1. A method of manufacturing a rotor assembly comprising the steps of:
- providing at least one stiffening ring including at least two radially outwardly extending tangs;
- providing at least two flux ring segments of magnetic flux conducting material;
- mounting a magnetic body having an arcuate outer surface on each of said flux ring segments;
- mounting said flux ring segments across the outer circumference of said stiffening ring such that one of said tangs is disposed between each adjacent pair of said flux ring segments and such that said outer surfaces of said magnetic bodies form a generally cylindrical rotor surface;
- molding a matrix between said stiffening rings and said flux ring assemblies for maintaining the relative positions therebetween.

4,757,604
METHOD OF ASSEMBLING A SWITCH AND TERMINAL ASSEMBLY TO A DYNAMOELECTRIC MACHINE

James P. Frank, Rock Falls, Ill., and James L. King, Holland, Mich., assignors to General Electric Company, Fort Wayne, Ind.
Division of Ser. No. 496,524, May 20, 1983, Pat. No. 4,594,773. This application Apr. 9, 1986, Ser. No. 849,915
Int. Cl.⁴ H01H *11/00*
U.S. Cl. 29—622 10 Claims

1. A method of assembling a switch and terminal assembly with an end frame for a dynamoelectric machine, the end frame including a pair of generally opposite end faces, the switch and terminal assembly having a casing with a plurality of walls, and a plurality of terminals secured to the casing with at least some of the terminals having electrical connector sections extending generally in row formation along one of the walls of the casing, respectively, and a separate ground termi-

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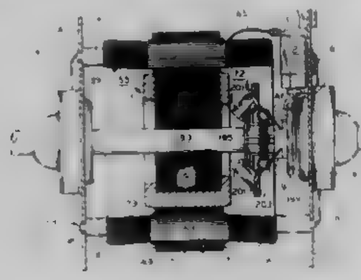
nal including a ground connector section, and a ground strap having a distal end portion and another portion interconnected between the ground connection section and the distal end portion, the method comprising the steps of:

disposing at least a part of another of the walls of the casing adjacent the one wall thereof in engagement with one of the opposite faces of the end frame and arranging the switch and terminal assembly in an assembly position on the end frame;

associating the separate ground terminal with the casing and



arranging the ground connector section of the separate ground terminal generally in the row formation with the electrical connector sections of the at least some terminals along the one wall of the casing;

placing the another portion of the ground strap in overlaying relation with at least a third one of the walls on the casing and overlaying the distal end portion of the ground strap with the one opposite face of the end frame during the associating and arranging step; and

securing the distal end portion of the ground strap in ground circuit relation with the end frame.

4,757,605

METHOD AND APPARATUS FOR MAKING PALLETS

Joseph Richardelli, Fredericksburg, Va., assignor to The Salk Institute for Biological Studies, San Diego, Calif.

Filed May 15, 1986, Ser. No. 863,926

Int. Cl.⁴ B27F *7/02*

U.S. Cl. 29—709 2 Claims

1. Apparatus for manufacturing wooden pallets comprising:

a stringer loading station comprising means for guiding and supporting longitudinally-oriented stringers manually loaded thereon;

a deckboard installation station comprising positioning means for positioning deckboards transversely on the upper surfaces of said stringers and nailing means for nailing the deckboards in place;

turnover means for inverting a partially-completed pallet about a transverse horizontal axis after nailing of a first set of deckboards to one side of the pallet and prior to nailing of a second set of deckboards to the opposite side thereof;

a delivery station for receiving completed pallets; and

gripper carriage means for transporting pallets at various stages of manufacture between stations along the length of the apparatus with the stringers disposed longitudinally relative to the length of the apparatus;

said gripper carriage means comprising a gripper assembly which includes two sets of grippers disposed on opposite sides of a transverse horizontal axis about which said gripper assembly rotates to invert partially-completed pallets, said gripper carriage means further comprising horizontal drive means for effecting horizontal movement of said gripper carriage means;

said nailing means comprising a transversely-oriented, vertically-movable nailing head, a plurality of punches supported by said nailing head and fixed thereto, a vertically-movable chuck assembly for engaging the upper surface of each deckboard as the deckboard is nailed in place and guiding nails as they are driven downward by said punches, said chuck assembly engaging only one deckboard at a time, vertical drive means which lower said chuck assembly onto each deckboard, then lower said nailing head to said drive punches, then raise said nailing head and said chuck assembly, and stroke control means for determining the lower end of the vertical stroke of said nailing head individually for each deckboard and varying the length of the stroke as necessary to compensate for differences in elevation of the upper surfaces of the deckboards due to differences in thickness among the deckboards and variations in stringer dimensions;

said stroke control means comprising a limit switch cooperating with said nailing head and chuck assembly, said limit switch being mounted on said chuck assembly, said limit switch being mounted on said chuck assembly, and means affixed to said mailing head triggering said limit switch, said limit switch being triggered during each stroke of the nailing head when the nailing head reaches a predetermined position with respect to said chuck assembly after the chuck asssembly engages the upper surface of a deckboard, and means for effecting reversal of said nailing head upon triggering of said limit switch while said chuck assembly engages the upper surface of a deckboard so that nails will be reliably driven to predetermined depths with respect to each deckboard;

said vertical drive means comprising a pair of hydraulic cylinders, one disposed on each side of said nailing head.

4,757,606

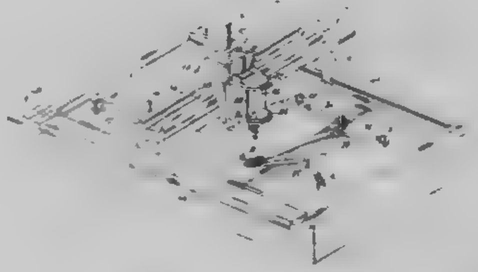
METHOD AND APPARATUS FOR TERMINAL INSERTION

Homer L. Eaton, Leucadia, Calif., assignor to MTS Vektronics Corporation, Carlsbad, Calif.

Division of Ser. No. 646,949, Sep. 4, 1984, Pat. No. 4,658,503. This application Jan. 28, 1987, Ser. No. 9,274

Int. Cl.⁴ H01R *43/00*

U.S. Cl. 29—748 43 Claims



1. Apparatus for inserting a wire terminal into a connector comprising:

a support,

an insertion head mounted on the support,

means for mounting a connector on the support,

a wire drive member carried by the head for motion between a first position and a terminal insertion position,

wire drive means mounted on said member, said wire drive means including means for grasping and longitudinally driving a wire having a terminal secured thereto,

means for moving said member from said first position to said terminal insertion position so that the end of a wire grasped by said wire drive means is moved to a terminal insertion position,

means for actuating said wire drive means to longitudinally drive a wire grasped thereby, and

means for moving said insertion head relative to said support and toward and away from said connector mounting means so that said head and the end of a wire grasped by said wire drive means are moved from a position remote from the connector mounting means to a position adjacent the connector mounting means.

4,757,607

INSTALLATION FOR ASSEMBLING SEVERAL CAR BODY MODELS OF THE SAME TYPE OF MOTOR VEHICLE

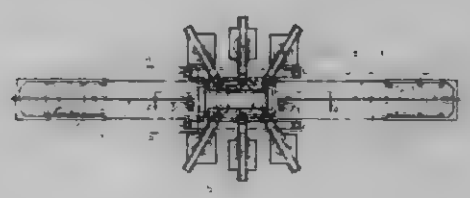
Mario Sciaky, Paris; Jean-Jacques Marianne, Combs la Ville; Pierre Jablonski, Creteil, and Michel Leonard, Maisons Alford, all of France, assignors to Sciaky S.A., Vitry Sur Seine, France

Continuation of Ser. No. 691,243, Jan. 14, 1985, abandoned. This application Sep. 17, 1986, Ser. No. 908,976

Claims priority, application France, Jan. 12, 1984, 84 0034

Int. Cl.⁴ B23P *21/00*

U.S. Cl. 29—771 4 Claims



1. Apparatus for positioning and holding car body parts and for welding these parts to one another, comprising a fixed, rigid supporting stand (1) having an upper part with a horizontal conveyor track (11) and at least two upper carriages (13, 14), each having positioning and holding devices for components of the upper part of different car body models of a motor vehicle; said supporting stand having a lower part with a lift (8, 10) positioned over a pit and carrying centering devices cooperating with the components of the lower part of a type of car body for a motor vehicle, which car body lower part is common to several models, said lift being disposed between horizontal transfer tracks arranged in alignment and each abutting the base of said stand, and said lift being displaceable between two positions, namely a lower position in which the lift is situated between and in alignment with said transfer tracks (3, 4) one of which tracks (3) is for bringing to said stand car bodies to be welded and the other of which tracks (4) is for removing from said stand car bodies which have been welded and an upper position, in which the car body of a model of vehicle engages with the positioning and holding devices (13_1, 14_1) for one of the corresponding models of vehicles, supported by one of the upper carriages (13, 14).

4,757,608

DOOR INSTALLING APPARATUS IN VEHICLE ASSEMBLING LINE

Tadashi Ochi, Hiroshima, Japan, assignor to Mazda Motor Corporation, Hiroshima, Japan

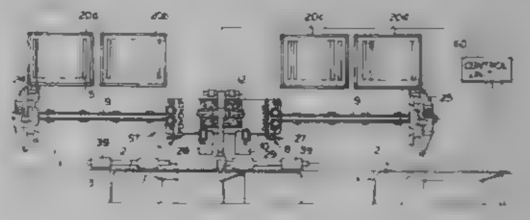
Filed Mar. 17, 1987, Ser. No. 26,752

Claims priority, application Japan, Mar. 18, 1986, 61-59775; Mar. 18, 1986, 61-59776

Int. Cl.⁴ B23P *21/00*

U.S. Cl. 29—787 17 Claims

1. An apparatus for installing a vehicle door on a vehicle body, the apparatus comprising installing robot means provided at a side of a vehicle body assembling line in a door installing station for installing doors on vehicle bodies on the assembling line, the robot means being stationary with respect to the assembling line, control means for making the robot means to operate in a predetermined manner, door storing means provided along said vehicle body assembling line and having a plurality of door storing sections wherein vehicle doors of different types are stored, door pick up means for picking up a door from a selected one of the door storing sections, door transporting means for transporting the door picked up-by said door picking up means to said robot means to



be received by the robot means, door locating means for locating the door transported by said transporting means with respect to said robot means before it is received by the robot means, said control means being means for operating said door picking up means, said transporting means and said locating means so that an appropriate door which fits to the vehicle body in the door installing station is picked up by the picking up means and transported to the locating means to be located with respect to said robot means.

4,757,609

APPARATUS FOR JOINING SHEET MATERIAL

Edwin G. Sawdon, St. Clair, Mich., assignor to BTM Corporation, Marysville, Mich.

Continuation-in-part of Ser. No. 607,948, May 7, 1984, abandoned, which is a division of Ser. No. 495,440, May 17, 1983, Pat. No. 4,459,735, which is a continuation of Ser. No. 184,951, Sep. 8, 1980, abandoned. This application Apr. 17, 1986, Ser. No. 853,130

Int. Cl.⁴ B23P *19/00*

U.S. Cl. 29—798 30 Claims

1. An apparatus for joining two or more sheet material items, the apparatus comprising:

punch means;

a die assembly including pair of die portions defining an opening of receiving said punch means to forcibly deform portions of the sheet material items when said punch means and said die portions are moved relatively toward one another in a generally longitudinal direction with said sheet material items disposed therebetween, said die portions being movable relative to one another in a generally lateral direction;

means for longitudinally supporting said die portions during said deformation of said portions of the sheet material items;

anvil means located in said opening, said die portions moving laterally away from one another in response to at least parts of said sheet material portions being deformed laterally outwardly by movement of said punch means against said anvil means; and

elastic biasing means surrounding said die portions for resiliently biasing said die portions toward one another.

30. An apparatus for joining two or more sheet material items, the apparatus comprising:

punch means;

a pair of die portions defining an opening for receiving said punch means and configured to cooperate with said punch means to forcibly deform portions of the sheet material items when said punch means and said die portions are moved relatively toward one another in a generally longitudinal direction with said sheet material items disposed

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therebetween, said die portions being movable relative to one another in a generally lateral direction;

means for longitudinally supporting said die portions during said deformation of said portions of the sheet material items; and

anvil means located in said opening, said die portions moving laterally away from one another in response to at least parts of said sheet material portions being deformed laterally outwardly by movement of said punch means against said anvil means,

the lateral dimension of said punch means being approximately twice the combined, undeformed thicknesses of said sheet material items, and the lateral dimension of the spacing between said die portions being approximately equal to the sum of the lateral dimension of said punch means plus approximately 80 percent of the combined, undeformed thicknesses of the sheet material items.

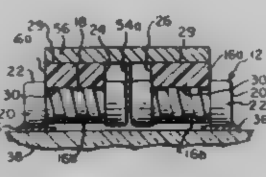
4,757,610
SURFACE MOUNT NETWORK AND METHOD OF MAKING

Donald C. McElheny, Delevan, and Dale A. Ponivas, West Seneca, both of N.Y., assignors to American Precision Industries, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 831,582, Feb. 21, 1986, abandoned. This application Oct. 20, 1987, Ser. No. 110,323

Int. Cl.⁴ H05K *3/30;* **B65D** *73/02*

U.S. Cl. 29—832 24 Claims



1. A method of making a network comprising the following steps:

providing a plurality of electrical components each including an elongated component body having spaced apart first and second ends, a first electrically conductive end cap mounted on the first end and a second electrically conductive end cap mounted on the second end, the first and second end caps each having an initially exposed exterior surface; and

incorporating said components in a rigid dielectric support in such a manner that one portion the exterior surface of at least one of said first and second end caps of all of the electrical components is exposed, all of said one portions lying in a common plane on the periphery of the assembly.

13. A network assembly adapted to be mounted on the surface of a printed circuit board, said network comprising:

rigid common support means; and

a plurality of selected electrical components incorporated in said rigid common support means, each component including an elongated component body and a pair of electrically conductive end caps mounted on opposite ends of said component body, an exposed exterior surface portion of at least one end cap of each of said plurality of electrical components lying in a common plane on the periphery of the assembly.

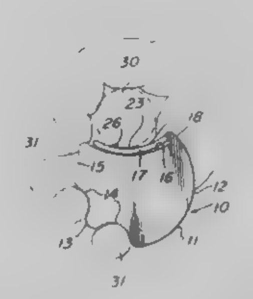
4,757,611
COIN ROLL CUTTER

Dean J. Tommi, P.O. Box 232, 19 Grobe Ave., Cologne, N.J. 08213, and Michael Weisbecker, 135 Philadelphia Ave., Egg Harbor, N.J. 08215

Filed Feb. 2, 1987, Ser. No. 9,838

Int. Cl.⁴ B67B *7/00*

U.S. Cl. 30—2 8 Claims



1. A hand implement for opening a wrapped coin roll, said implement comprising a generally circular body sized to be held in the palm of a user's hand and having one side configured for engagement with the palm side of a user's fingers, the other side of said body being concavely arcuately cut-away, an arcuate bearing member along the cut-away on the other side of and spaced from said body and being outwardly concave for receiving engagement with a coin roll, mounting means mounting said bearing member to said body for resilient yielding movement towards said body upon forceable engagement of a coin roll in said bearing member, and a cutting element extending from the other side of said body into said bearing member and having a cutting edge received in said bearing member when the latter is spaced from said body, said cutting edge projecting through and beyond said bearing member upon said forceable engagement to impale and cut a coin roll wrapper.

4,757,612
FIXED-BLADE KNIFE WITH RETRACTABLE BLADE COVER

Jean-Claude Peyrot, Bordeaux, France, assignor to Preposreve S.A.R.L., France

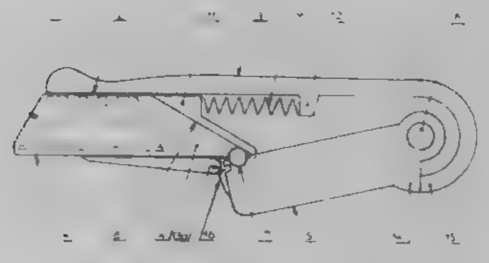
Continuation of Ser. No. 714,447, Mar. 21, 1985, abandoned. This application Feb. 5, 1987, Ser. No. 14,215

Int. Cl.⁴ B26B *3/06*

U.S. Cl. 30—151 6 Claims

1. Knife comprising a hollow handle, a housing in said handle adapted to receive a removable blade fixed in position relative to said handle and projecting at least partly from one

end of said handle, a blade cover slidably disposed within said handle to be movable axially between a first position in which it is retracted into said handle and a second position in which it is adapted to surround or cover the part of said blade projecting from said handle, and means for moving said blade cover between said first and second positions exhibiting an actuator pivoted to said handle and a transmission mechanism adapted to convert rotation of said actuator into axial displacement of said blade cover within said handle, whereby when said actuator is depressed said blade cover is moved to said first position.



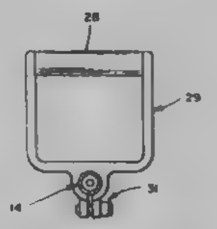
4,757,613
CHAIN SAW EXTENSION STRUCTURE

Archie E. Baudreau, P.O. Box 1125, Modesto, Calif. 95353; Seldon J. Graham, 2225 Scenic Dr., Modesto, Calif. 95354; Bob Good, 7961 Fox Rd., Hughson, Calif. 95326, and Dean Brenner, 2908 Whitmore Ave., Ceres, Calif. 95307

Filed May 4, 1987, Ser. No. 45,428

Int. Cl.⁴ B23D *57/02*

U.S. Cl. 30—383 3 Claims



1. Drive transmitting extension structure for connecting the cutting head of a chain saw with a spaced apart motor and handle unit thereof, said cutting head having a chain guide plate, a chain drive sprocket and a toothed cutting chain fitted onto the periphery of said guide plate and being engaged with said drive sprocket, said motor and handle unit having a housing with at least one handle and having a motor secured to said housing and having a drive output member located at one side of said housing and which turns about an axis that is orthogonal to the plane of said chain guide plate, and wherein said motor and handle unit includes a centrifugal clutch driven by said output member which clutch has a drive output hub, wherein said drive transmitting extension structure comprises:

a first gearbox having first and second engaged bevel gears which are rotatable about orthogonal axes, means for attaching said first gearbox to said motor and handle unit with said first bevel gear being positioned at said side of said housing in coaxial relationship with said drive output member and being coupled to said drive output member in driven relationship therewith, and wherein a cylindrical drum is secured to said first bevel gear in coaxial driving relationship therewith, said drum being positioned and proportioned to replace said output hub of said centrifugal clutch,

a second gearbox having third and fourth engaged bevel gears which are rotatable about orthogonal axes, means for attaching said cutting head to said second gearbox and means for coupling said fourth bevel gear to said chain drive sprocket in driving relationship therewith,

a tubular extension arm interconnecting said first and second gearboxes, and

a rotary drive shaft extending axially within said extension arm in coaxial relationship with said second and third bevel gears and having means for coupling to each thereof to transmit drive therebetween.

4,757,614
ARCHERY BOW SIGHT

Donald S. Kudlacek, 3412 Oak St., Longview, Wash. 98632

Continuation of Ser. No. 877,596, Jun. 23, 1986, abandoned. This application May 22, 1987, Ser. No. 54,130

Int. Cl.⁴ F41G *1/00*

U.S. Cl. 33—265 3 Claims

1. An archery bowsight, comprising:

(a) a base configured for mounting to an archery bow handle,

(b) an elongated sight bar member mounted on the base for disposition in a substantially vertical plane,

(c) a plurality of sight pin mounting members each comprising a block arranged to extend transversely across the sight bar member, dovetail interconnecting means on the block and the sight bar member, and a slot in the block intermediate the ends of the block intercepting the dovetail interconnecting means therein, for adjustment of the block along the length of said sight bar member,

(d) a plurality of elongated threaded sight pins, one of said sight pins being mounted on each block, the sight pin extending across the slot in the block and through axially aligned threaded bores in the block on opposite sides of said slot for adjustable movement transversely of the longitudinal dimension of the sight bar member, and

(e) clamp means on each block for releasably clamping the block to the sight bar member in desired position of longitudinal adjustment,

(f) the clamp means including a clamp screw in the block spaced from and independent of the sight pin and extending across said slot and operable upon rotation in one direction to move the block sections on opposite sides of the slot simultaneously into clamping engagement with the sight bar member and to move the threaded bores in said block sections out of axial alignment and into clamping engagement with the portions of the sight pin in said threaded bores to prevent rotation of the sight pin.

4,757,615
LEVEL VIAL RETAINING ASSEMBLY AND RETAINER THEREFOR

Norbert J. Cecil, Burlington, Conn., assignor to The Stanley Works, New Britain, Conn.

Filed Mar. 13, 1987, Ser. No. 25,679

Int. Cl.⁴ G01C *9/24;* **F16B** *21/18*

U.S. Cl. 33—379 12 Claims

1. A retainer member comprising:

a hub defining a center and a reference plane;

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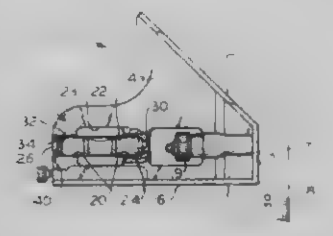
a first set of angularly spaced resilient ears integrally extending outwardly from said hub generally radially thereto and terminating at a substantially uniform first distance from the center of said hub, said ears being directionally oriented at a generally uniform first acute angle with respect to the plane of said hub; and

a second set of angularly spaced resilient ears integrally extending outwardly from said hub generally radially thereto and terminating at a second distance from the center of said hub, which distance is less than said first distance, said second set of ears being directionally oriented at a generally uniform second acute angle with respect to the plane of said hub, said second acute angle and said first acute angle being on opposite sides of said plane



4,757,616
RULER WITH MAGNIFYING CURSOR

Brian Hills, Rolling Hills Estates, Calif., assignor to Educational Insights, Dominguez Hills, Calif.

Filed Oct. 26, 1987, Ser. No. 112,403

Int. Cl.⁴ B43L *7/00;* **G02B** *27/02*

U.S. Cl. 33—488 **5 Claims**

1. A measuring device for determining the length of an object or distance comprising the combination of:

an elongated base having a central recess separated by a pair of edge marginal regions having opposing wall surfaces defining said central recess;

said base recess characterized as a T-shaped recess having a pair of opposing slots in said wall surfaces of said respective edge marginal regions;

a first one of said edge marginal regions having a plurality of line increment marks as a measurement scale carried along a straight edge against which the object or distance is measured;

two rows of staggered numerical indicia of different fractional values carried on said base at the bottom of said recess and each numerical fractional value assocated with and aligned with a particular line increment mark of said measurement scale;

a cursor composed of transparent material movably carried on said base and having an index marker carried on a cantilevered finger over said measurement scale adapted to be registered with a selected one of said line increment marks at the end of the object or distance to be measured;

said cursor further having a magnifying means centrally disposed thereon in linear alignment with said index marker and immediately about said recessed display of numerical indicia whereby alignment of said index marker with selected line increment marks reveals an enlarged display of a selected numerical indicia of a given fractional value; and

framing means carried on said cursor on either side of said magnifying means for obscuring non-selected numerical indicia.

4,757,617
METHOD OF DRYING FORMED CERAMIC MASS AND JIG USED IN THE METHOD

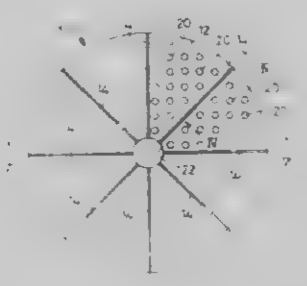
Tatuya Ishiguro, Tajimi, Japan, assignor to NGK Insulators, Ltd., Japan

Filed Mar. 12, 1986, Ser. No. 838,948

Claims priority, application Japan, May 7, 1985, 60-97496

Int. Cl.⁴ F26B *3/04*

U.S. Cl. 34—21 **20 Claims**



1. A method of drying a formed ceramic mass having an end face in which holes are open, comprising the steps of:

preparing a jig including a plurality of fixed, substantially non-resilient blade-like projections which protrude from a surface of the jig; and

drying said formed ceramic mass while preventing said formed ceramic mass from being deformed by holding said jig in abutting contact with said end face such that said plurality of fixed, substantially non-resilient blade-like projections pierce a plurality of portions of said formed ceramic mass adjacent to said one end face.

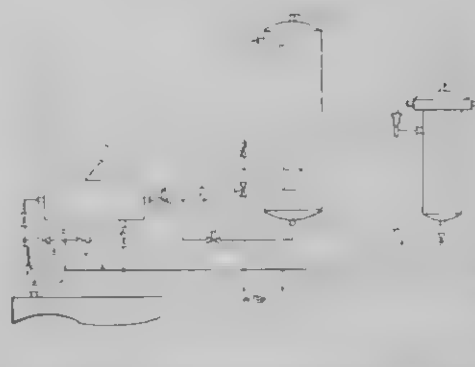
4,757,618
SHIP SYSTEM FOR THE RECOVERY OF FUEL OIL FROM SLUDGE REMOVED BY FLUSHING OF HEAVY [redacted]

Mihail V. Mihalov, Sofia, Bulgaria, assignor to Kombinat "Korabostroene", Varna, Bulgaria

Filed Nov. 19, 1986, Ser. No. 932,634

Int. Cl.⁴ F26B *23/10*

U.S. Cl. 34—73 **3 Claims**



1. A shipboard system for the recovery of fuel oil from sludge comprising:

a sludge tank for holding a mixture of sludge and fuel oil from the flushing of a heavy-oil purifier;

a settling tank provided with a first steam heating coil for heating said mixture;

a sludge pump connected between said sludge tank and said settling tank for feeding said mixture to said settling tank;

an evaporation vessel for the desiccation of said mixture;

a fuel pump connected between said settling tank and said evaporation vessel for feeding said heated mixture to said evaporation vessel, a bottom portion of said evaporation vessel being connectable to a fuel tank;

a condenser connected to said evaporation vessel and formed with an overflow pipe;

a condensate vessel connected to said condenser by said overflow pipe, a bottom portion of said condensate vessel being connectable to a disinfestation tank;

an ejector having the vacuum side thereof connected to a top portion of said condensate vessel and the pressure side thereof connected to said condenser; and

a control unit connected at the connection between said sludge pump and said settling tank and including a plurality of gate valves feeding into a funnel for the visual inspection of said mixture and a drain provided at the bottom of said settling tank, said funnel and said drain being connectable to said disinfestation tank.

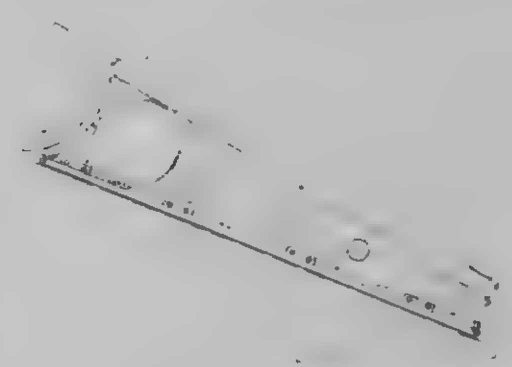
4,757,619
SUCTION TRANSFER SYSTEM FOR HIGH SPEED [redacted]

Joseph A. Villalobos, Mahwah, N.J., assignor to Thermo Electron Web Systems, Inc., Auburn, Mass.

Continuation of Ser. No. 732,936, May 13, 1985, abandoned. This application Oct. 10, 1986, Ser. No. 918,593

Int. Cl.⁴ F26B *13/10*

U.S. Cl. 34—116 **3 Claims**



1. In a dryer in which the web to be dried is disposed outside of and below a length of the dryer fabric extending between two rolls in a dryer section having a single continuous fabric, apparatus including in combination a suction transfer device, and means mounting said device above said fabric length with said device extending from edge to edge of said fabric, means dividing said suction transfer device into side sections associated with the fabric edges and a central section between said side sections, said side sections including bottom plates adjacent to said fabric, said bottom plates being formed with undulations, said bottom plates being perforated in the regions of the crests of said undulations and unperforated in the regions of the troughs of said undulations, means for producing negative pressure in said side sections above said bottom plates, said center section comprising a central plate spaced above said fabric, respective seals with said fabric around the peripheries of said side sections, and a seal between the central plate at the entry end thereof and said fabric, said central plate diverging from said fabric in the direction of movement thereof to produce a slight negative pressure above said fabric in the area between said side sections.

4,757,620
SOLE STRUCTURE FOR A SHOE

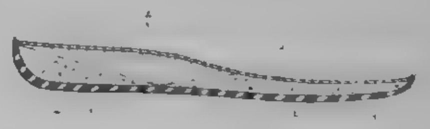
Antti-Jussi Tiitola, Kaivanto, Finland, assignor to Karhu-Titan Oy, Finland

Continuation of Ser. No. 897,515, Aug. 18, 1986, abandoned. This application Nov. 25, 1987, Ser. No. 125,255

Claims priority, application Finland, Sep. 10, 1985, 853461

Int. Cl.⁴ A43B *13/12, 13/18*

U.S. Cl. 36—28 **19 Claims**



1. A sole structure for a shoe, comprising an inner layer, and a cushioning and supporting structure situated underneath said inner layer, said cushioning and supporting structure comprising

an outer sole having a wearing surface with a configuration such that during a rolling phase of use, said wearing surface is substantially entirely in contact with ground underneath said cushioning and supporting structure,

a flexible toe portion substantially extending from a forward tip of the shoe to an area thereof corresponding to the area which receives a ball of a foot,

a resilient heel portion, tapering in a wedge-like manner from a rear edge of the shoe towards the forward tip of the shoe and extending over at least an area of the shoe for receiving a heel of the foot, and

a body portion situated above said heel portion and substantially extending from the rear edge of the shoe to the area for receiving the ball of the foot over a zone adapted to fit against the heel and an arch of the foot, said body portion being substantially stiffer and harder than said heel portion and said toe portion,

wherein said wearing surface of said outer sole is substantially flat.

4,757,621
[redacted]

Shinichi Iwama, Sayama, Japan, assignor to Daiwa Seiko, Inc., Tokyo, Japan

Filed Feb. 24, 1987, Ser. No. 17,859

Claims priority, application Japan, Oct. 22, 1986, 61-161930[U]; Oct. 22, 1986, 61-161931[U]

Int. Cl.⁴ A43B *5/04*

U.S. Cl. 36—119 **7 Claims**

1. In a ski boot having a foot-encasing, outer shell body with inner and outer walls and a heel portion, said shell body further having a front cuff for covering the front portion of the ankle and adjacent lower leg portion of the wearer, first pivot means engaging said front cuff to the heel portion of said outer shell body for movement into forwardly or boot-open position and rearward or boot-closed position, a rear cuff, second pivot means engaging said rear cuff to said heel portion of said outer shell body rearwardly of said first pivot means whereby said rear cuff may be swung between forwardly, boot-closed and rearwardly, boot-open position, an inner boot member disposed within said outer shell body having front and rear portions confronting the proximate portions of the front and rear cuffs for movement therewith, the improvement comprising a boot tightening element provided on said rear cuff, a pair of elongated, flexible members each having one end engaged to opposite portions of said tightening element, each of said elongated, flexible members progressing forwardly on opposite sides of said boot from said tightening element with the outer

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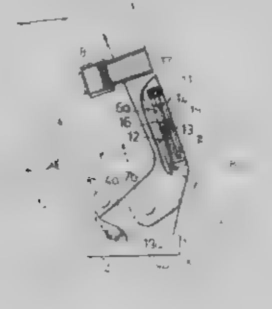
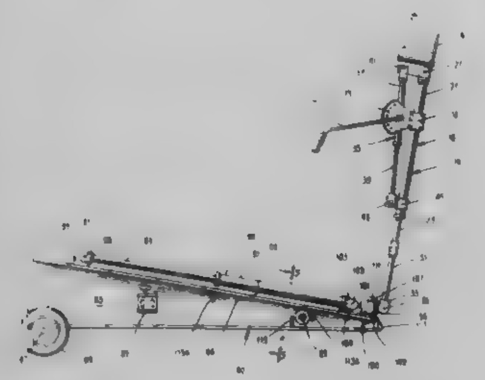
or forward end being anchored in the forward portion of said boot, opposed guides mounted on the inner walls of the heel portion of said outer shell body engaging intermediate portions of said elongated, flexible member, and said guides being located below, and forwardly of, said second pivot means for causing loosening of said elongatged, flexible members with decreased pressure of said tightening element upon said front cuff and rear cuff when in boot-closed position pivoting forwardingly during skiing, said second pivot means comprising first and second pivot pins engaging the opposed lower forward portions of said rear cuff to said outer shell body, said first and second pivot pins and the proximate guides being so relatively disposed that when said rear cuff is in forwardly boot-closed position the adjacent portions of said elongagted, flexible member were presented substantially coincident with a line intersecting the guide and the proximate first or second pivot pin, and when said rear cuff is in boot-open position the adjacent portions of said elongatged, flexible member will be located beyond the aforesaid line of intersection for causing loosening of the elongated flexible members when the rear cuff is in boot-open position, there being a pressing pad disposed on the outer forward surface of the inner boot member overlying the zone between the ankle and instep of the wearer, and the forward ends of said elongated, flexible members are fixed to opposite side portions of said pressing pad.



4,757,622

PORTABLE POWER SHOVEL

Charles W. Morris, P.O. Box 66, Paris, Tenn. 38242
Filed Dec. 30, 1986, Ser. No. 947,894
Int. Cl.⁴ E02F *5/00*
U.S. Cl. 37—1 **15 Claims**



1. An improved portable power shovel, comprising:

(a) a base portion including at least one beam having an axis of elongation and an angular, tapered shape; and adjustment means carried by said base portion;

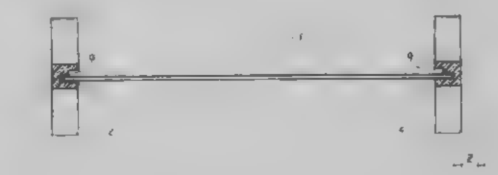
(b) a shovel portion including a blade reciprocably and pivotally mounted thereon, said shovel portion including:
  (1) a shovel head to which said blade is connected;
  (2) a first hydraulic ram having a cylinder connected to said shovel head and a piston in said cylinder having a piston rod connected to said adjustment means; and
  (3) a second hydraulic ram having a cylinder connected to said shovel head and a piston in said cylinder having a piston rod connected to said first hydraulic ram cylinder;
  (4) said blade being extendable by said first hydraulic ram and being pivotable by said second hydraulic ram through a pivoting range of motion including a position generally parallel with said first hydraulic ram; and

(c) said adjustment means being interconnected between said base portion and shovel portion for adjusting the position of said shovel portion with respect to said base portion along said axis of elongation.

4,757,623

NAMEPLATE HOLDER

Alvin W. Seyler, 3350 S. Orange Blossom Trail, P.O. Box 428, Kissimmee, Fla. 32741
Filed Apr. 30, 1987, Ser. No. 44,415
Int. Cl.⁴ A47G *1/06*
U.S. Cl. 40—152.1 **8 Claims**



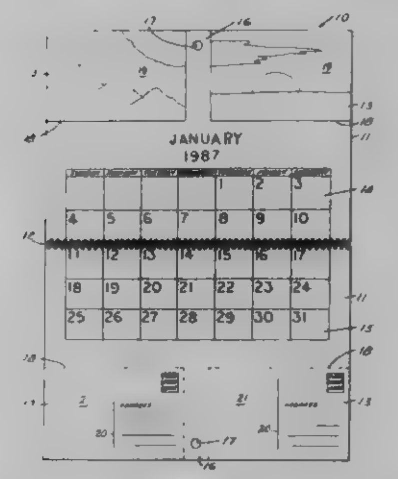
1. A sign holding arrangement for use on a flat surface, such as a desk or table, comprising a pair of spaced, upstanding parallel channel members opening toward each other to present opposed, facing slots, and also having corresponding feet, said slots each being designed to receive an end of an elongate panel member of a selected thickness, which may present an indicia-bearing face, each said slot in said channel members being of dual width, with one portion of each such slot having comparatively large width or thickness, and comparatively shallow depth, whereas another portion of each such slot having comparatively small width or thickness, and of two differnt thicknesses can be readily received in a tight fitting manner in appropriate portions of said slots.

4,757,624

CALENDAR

Lubomir Holec, 17905 Jos. Campau, Detroit, Mich. 48212
Filed Mar. 26, 1987, Ser. No. 30,335
Int. Cl.⁴ G09D *3/04*
U.S. Cl. 40—119 **4 Claims**

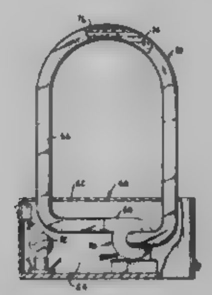
1. A calendar comprising
a plurality of sheets,
means hinging said sheets along one edge,
each sheet comprising spaced removable postcards along the free edge defined by lines of weakness,
each sheet being printed with one part of a month on one side of the sheet and another part of a month along the other side of the sheet,
a portion of each sheet between the postcards being aligned when the sheets are folded against one another and having an opening therein such that the openings of the aligned portions are aligned such that the calendar can be opened and suspended with one side of one sheet being visible with a part of a month showing and the succeeding sheet being visible with the remainder of the month being visible and such that the postcards can be removed along lines of demarcation leaving the remainder of the calendar [illegible]



4,757,625

DISPLAY ARTICLE WITH RECHARGED PHOSPHORESCENT MEDIUM

Dana L. Watkins, 505 SE. Kouns, Topeka, Kans. 66607
Filed Nov. 7, 1986, Ser. No. 927,963
Int. Cl.⁴ C09F *19/00*
U.S. Cl. 40—406 **10 Claims**

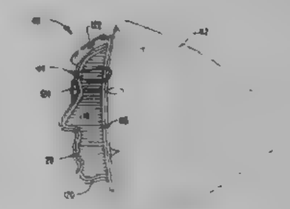


9. An article for producing a visual display, said article comprising:
a base structure having opaque walls defining a cavity therein hidden by the walls from view;
a light passing conduit defining an elongated passage, the conduit extending through the cavity and outwardly from the structure;
a translucent fluid medium in the conduit;
a plurality of phosphorescent particles in the fluid medium;
an incandescent lamp in the hidden cavity in disposition to emit light through the conduit in the cavity; and
means for moving the fluid through the passage at a speed to entrain the particles in the fluid for movement therewith, whereby the particles are charged by the lamp during movement through the cavity and while the lamp and the light emanating therefrom are hidden from view in the structure, the glow emanating from the charged phosphorescent particles being visible as they are carried by the conduit outwardly of the structure.

4,757,626

DISPLAY APPARATUS

Stephen Weinreich, 14 Norton Rd., Monmouth Junction, N.J. [illegible]
Continuation-in-part of Ser. No. 630,832, Jun. 13, 1984, Pat. No. 4,621,443. This application Oct. 9, 1986, Ser. No. 917,151
Int. Cl.⁴ G09F *19/12*
U.S. Cl. 40—427 **5 Claims**

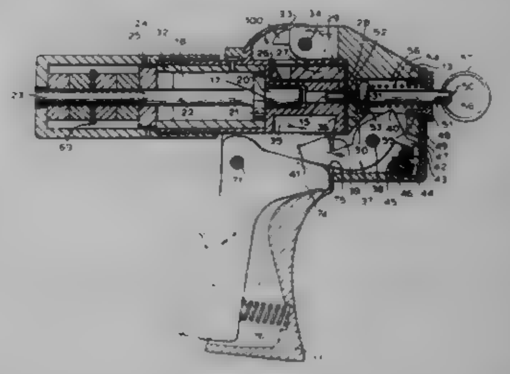


1. An apparatus for producing a contoured image comprising:
image producing means for producing a relatively flat image;
image element transmission means having a rear surface which faces said image producing means and a contoured front surface upon which an image is produced,
wherein elements of the image produced by said image producing means are transmitted by said image element transmission means to said contoured front surface to produce a contoured image on said contoured front surface.

4,757,627

PISTOL FOR SLAUGHTERING ANIMALS WITH AUTOMATIC CLOSURE BY MEANS OF THE TRIGGER

Romualdo Saligari, Via A. Rosmini, 13 Lecco (Como), Italy
PCT No. PCT/IT85/00032, § 371 Date Mar. 16, 1987, § 102(e) Date Mar. 16, 1987, PCT Pub. No. WO87/01261, PCT Pub. Date Mar. 12, 1987
PCT Filed Sep. 2, 1985, Ser. No. 41,074
Int. Cl.⁴ A22B *3/02*
U.S. Cl. 42—1.12 **18 Claims**



1. A pistol having means accomodating a captive projectile and a cartridge to be exploded, the pistol comprising:
a hand grip (11) with an edge (73);
an oblong body (70) hingably mounted and spring biased in said hand grip (11), said oblong body (70) having a trigger portion (72) projecting outward beyond said edge (73) and being arranged so that said oblong body (70) rotatably pivots when said trigger portion (72) is squeezed inward relative to said hand grip (11);
a breech (10) formed to accomodate a cartridge (15) to be exploded in the pistol;

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a breech block (13) defining a trajectory path (56) to said breech (10) where said cartridge is to be accomodated, said breech block being hingably mounted to swing upwardly and forwardly to said breech (10);
an internal balancing lever (37) pivotally mounted in said breech block (13) and having a projection (40) movable into said trajectory path (56);
a percussion pin (50) spring biased in said breech block along said trajectory path (56) toward said breech (10) where said cartridge (15) is to be accomodated;
spring means (44) for maintaining said projection (40) in said trajectory path (56);
means for holding (53) said percussion pin (50) against said projection (40) when said percussion pin (50) is in a cocked position in which said projection (40) is in said trajectory path (56) and said percussion pin biases against said projection (40);
means for rotatably pivoting said internal balancing lever (37) when said trigger portion (72) is squeezed inward relative to said hand grip (11) and including an arm (74) extending from said oblong body (70) and arranged to press against said internal balancing lever (37) when said trigger portion (72) is squeezed inward relative to said hand grip (11); and
means for fittably locking said breech (10) and said breech block (13) together after squeezing said trigger portion (72) a predetermined amount and including two teeth (36, 39), one of said two teeth (36) being formed on said breech (10) and the other of said two teeth (39) being formed on said internal balancing lever (37), said two teeth being arranged relative to each other to fittably lock said two teeth in each other when said trigger portion (72) is squeezed causing said arm (74) to rotatably pivot said internal balancing lever (37) and therefore said other of said teeth (39) against and along said one of said teeth (36) of said breech (10), said trigger portion (70) being thereafter squeezable further inward to further rotatably pivot said internal balancing lever to cause a tighter grip between said two teeth (36, 39) and to cause release of said projection (40) from said holding means (53) and therefore from said percussion pin (50) so that said percussion pin (50) consequently biases sharply forward along said trajectory path and into contact with a cartridge accomodated by said breech (10) thereby causing the cartridge to explode

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4,757,628

SHARK SABER

Gary M. Bulfer, 5715-13 Baltimore Dr., La Mesa, Calif. 92041
Filed Mar. 27, 1987, Ser. No. 31,021
Int. Cl.⁴ F41C *9/06*
U.S. Cl. 42—1.14 20 Claims

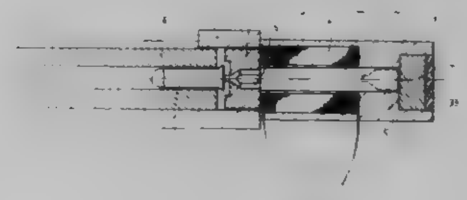
1. An underwater firearm comprising:
an elongated handle having first and second opposed ends and a hollow interior, and having an intermediate portion between said ends, wherein said intermediate portion has therein a trigger aperture extending into said hollow interior for receiving a trigger means;
a first spring retaining means fixed in said hollow interior of said handle between said first and second ends thereof for retaining a first end of a spring means;
head means attached to said first end of said hollow handle for receiving in a first interior location a cartridge having an explosive primer oriented so that said primer faces toward said hollow handle, wherein said head means has a first hole extending in a first direction between said first interior location and said hollow interior of said handle for admitting a firing pin for exploding said primer, and wherein said head means has a second hole extending from said interior location in a second direction opposite said first direction to an exterior end of said head means to permit the exploding charge of said cartridge to escape from said exterior end on firing;
an elongated firing rod lengthwise aligned in said hollow handle and having, adjacent said first end of said handle, a first end containing a firing pin adapted to extend through said first hole in said head means for exploding said primer, and having a second end extending beyond said second end of said handle, and having an intermediate portion containing a cocking latch means for retaining said firing rod in a cocked position wherein said firing pin is spaced away from said primer;
second spring retaining means fixed to said firing rod between said first and second ends thereof for retaining a second end of said spring mean;
spring means extending between said first and second spring retaining means for forcing said firing pin against said primer;
guiding means for moveably holding said firing rod in said hollow handle;
trigger support means on said hollow handle and extending alongside said trigger aperture;
moveable trigger means pivotally supported by said trigger support means and extending through said trigger aperture into said hollow interior interior of said handle for engaging said cocking latch means on said firing rod to hold said firing rod in a cocked position against the force of said spring means;
safety pin means extending substantially perpendicular to said firing rod and attached thereto near said second end of said hollow handle;
safety latch means located at said second end of said handle, surrounding said firing rod passing longitudinally therethrough, and longitudinally encompassing said safety pin means, wherein said safety latch means comprises a slot for receiving said safety pin means, and wherein said slot has a first part that is longitudinally aligned parallel to said firing rod and a second part communicating with said first part but circumferentially displaced therefrom and a third part intermediate between said first and second parts, and wherein said third part is at a greater distance from said first end of said handle than the portion of said first and second parts closest thereto, and wherein said closest portions of said first and second parts are at a distance from said first end of said handle such that when said safety pin means is located in said first part said firing pin may contact said primer, and when said safety pin means is located in said second part, said firing pin may not contact said primer; and
gripping means on said second end of said firing rod for pulling said firing rod and pin longitudinally away from said primer and compressing said spring means.

4,757,629

GUN FIRING MECHANISM

Trevor A. Austin, 37 Kowhai Street, Timaru, New Zealand
Filed Dec. 6, 1985, Ser. No. 805,891
Claims priority, application New Zealand, Dec. 6, 1984, 210457
Int. Cl.⁴ F41C *19/12*
U.S. Cl. 42—84 7 Claims

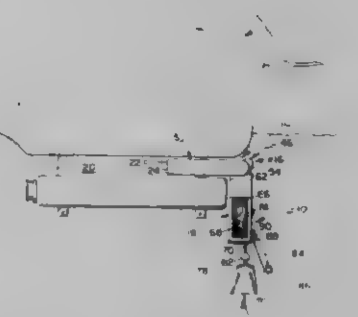
1. An electrical trigger mechanism for a gun comprising:
(i) a magnetically attractable firing pin of low weight;
(ii) magnetic biasing means to attract said firing pin to, and hold it at, a first stationary position at one end of the path of travel of said firing pin which path of travel extends through an electromagnetic means, the bullet-impacting tip of the firing pin being spaced apart in said first stationary position from the end of said electromagnet means through which the firing pin will first pass when attracted by said electromagnet means;
(iii) said electromagnet means when energized attracting said firing pin from said stationary position so that said firing pin passes through said electromagnet means;
(iv) energizing means to energize said electromagnet means for a sufficiently short time that the magnetic field thereof has decayed by the time said firing pin reaches the axial center of said electromagnet means along said path of travel from said stationary position;
(v) said biassing means automatically attracting back the firing pin to said stationary position after it has impacted on, and rebounded from, the bullet so as to reset the mechanism.



4,757,630

ANCHORING MECHANISM FOR DECOYS AND FLOATING ARTICLES OF THE LIKE

Richard L. Torberg, 3607 Steele St., Minnetonka, Minn. 55345
Filed Aug. 5, 1986, Ser. No. 893,398
Int. Cl.⁴ A01M *31/06*
U.S. Cl. 43—3 8 Claims

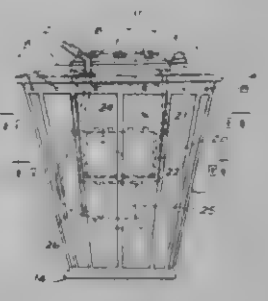


1. An anchoring mechanism usable with a bird hunting decoy with a keel for floating on the surface of a body of water to preserve the function of simulating realistic behavioral characteristics of the decoy due to a rising and falling wave action on the body of water, said anchoring mechanism comprising:
a frame including mounting means capable of removably engaging the keel of the decoy;
a reel assembly carried by said frame and including a spindle and a spool with a central axis of rotation generally parallel to the surface of the body of water, said spool mounted on said spindle to rotate about said central axis;
and anchoring line wrapped on said spool and having a free end;
an anchor fixed to said free end of said anchoring line; and
said spool including a weighted handle extending outwardly from a point displaced radially from said central axis of said spool with said handle being carried on said spool and rotatably oscillatable therewith about said spindle subject to the opposing and generally vertically acting forces of anchoring line tension and handle weight as the decoy and said frame rise and fall with the wave action, the weight of said handle being light enough so as to allow the reel to rotate and the anchor line to be played out as the decoy rises due to the wave action and being heavy enough to rotate the reel and rewind the anchor line played out as the decoy falls due to the wave action, thereby avoiding excessive anchor line discharge while permitting the decoy to function with realistic behavioral characteristics on the water without being pulled beneath the water by the weight of the anchor.

4,757,631

FISH LURE

Brian Anson-Smith, 50 Trevelyan Street, Botany, New South Wales, Australia
Filed Sep. 18, 1987, Ser. No. 98,406
Claims priority, application Australia, Oct. 9, 1986, PH8406
Int. Cl.⁴ A01K *85/00*
U.S. Cl. 43—17.5 9 Claims

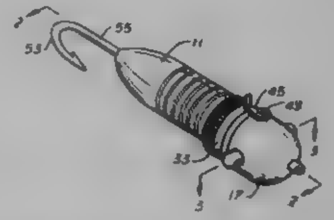


1. A fish lure comprising: a self-righting float, a hollow casing forming the outside wall of said float upper and lower portions to said casing being respectively arranged above and below a waterline to said float, said casing defining internally a chamber and being formed with openings leading into the upper and lower regions of said chamber a pump located in said chamber, multi-faceted reflective side surfaces formed externally on the lower portion of said casing, a spray nozzle on the upper portion of said casing, and connections delivering water from said pump to said nozzle.

4,757,632

LIGHT EMITTING FISHING LURE

George Grohl, 1578 Graff Ave., San Leandro, Calif. 94577
Continuation-in-part of Ser. No. 824,860, Jan. 31, 1986, Pat. No. 4,663,880. This application Feb. 6, 1987, Ser. No. 11,675
The portion of the term of this patent subsequent to May 12, 2004, has been disclaimed.
Int. Cl.⁴ A01K *85/01*
U.S. Cl. 43—17.6 2 Claims



1. A light emitting fishing lure comprising
a body portion having a cavity formed therein for containing a battery in the rear end thereof, the opposite front end thereof being adapted to mate with a head portion in sealing relation to prevent water from entering the cavity portion of said body, said body portion having an electri-

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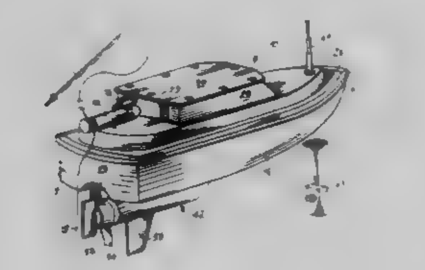
cally conducting annular collar disposed at the forward end thereof,
a spring disposed in the closed rear end of said body cavity and electrically connected to said collar and urging said battery toward the opposite front end of said lure body and forming an electrical contact for said battery,
a head portion securable to said body portion and having a contact for engaging the reciprocal electrical contact of said battery,
at least a pair of LEDs disposed on opposite sides of the lure projecting from the head portion thereof and being electrically connected to said battery through said head portion contact, and
a switch contact actuatable by means of a rotatable arm which is in electrical engagement with said LEDs and projects from said head portion whereby it can be rotated from outside said lure body into and out of contact with the forward end of the body portion of said lure.

4,757,633
REMOTE CONTROL FISH TROLLING DEVICE

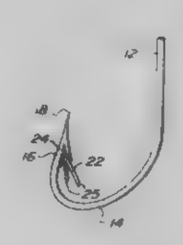
Gary P. Van Cleve, Oak Harbor, Wash., assignor to William B. Allen, Clinton, Wash., a part interest
Filed Jan. 23, 1987, Ser. No. 7,006
Int. Cl.⁴ A01K *97/00*
U.S. Cl. 43—26.1 1 Claim



1. A remote controlled fish trolling vessel for trolling a fish line remote from a fisherman in response to transmitted command radio waves;
a miniature floatable vessel having a lower hull section projecting below the surface of the water;
an electrical motor and propeller assembly mounted to the vessel with both the motor and propeller projecting below the lower hull section for propelling the vessel over the surface of the water;
a rudder mounted on the vessel controlling the direction of movement of the vessel as the vessel is propelled through the water;
a radio wave receiver on the vessel for receiving the command radio waves;
control means operatively connected to the radio wave receiver, the rudder, and the electrical motor for controlling the speed and direction of the vessel with respect to the fisherman in response to the receipt of the command radio waves; and
fishing line attaching means for releasably securing the fishing line to the vessel intermediate the fisherman and the fishing lure to troll the fishing line behind the vessel as the vessel is propelled over the water surface and to release the fishing line from the vessel when a fish is hooked to enable the fisherman to play the fish to the fisherman free of the trolling vessel;
wherein the fish line attaching means incudes:
a housing;
magnetic means having a first magnet affixed to the fishing line intermediate the fisherman and the fishing lure and a second magnet on the housing for magnetically releasably securing the first magnet to the housing until a fish is caught; and
the fish line attaching means has tension adjusting means for adjustably spacing the first and second magnets to adjust the force required to release the first magnet from the fish line attaching means.

4,757,634
FISH HOOK

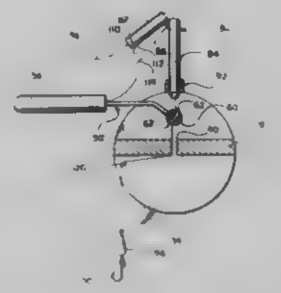
Charles L. Meixsell, Jr., Box 753, Slatington, Pa. 18080
Filed Sep. 24, 1988, Ser. No. 100,407
Int. Cl.⁴ A01K *83/00*
U.S. Cl. 43—43.16 5 Claims



1. In a fish hook including a generally J-shaped body having three sections, a first generally straight shank section including line attachment means, a second intermediate curved bend section and a third tip section with a pointed end, the improvement comprising at least one resilient generally U-shaped flexible barb pivotably and rotatably mounted on said tip, said barb length being predetermined to extend outward from said tip to a point less than the distance between said tip section and said curved bend section's midpoint, so that on hooking, said flexible barb rotates downward and pivots inward to pass through a hole in the catch created by said tip end to thereafter spring outward to restrain disengagement until the catch is unhooked.

4,757,635
DEPTH-CHANGING FISHING FLOAT

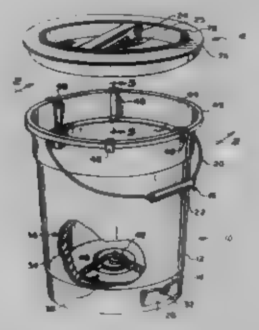
Michael A. Cole, 730 Hill St., Apt. C, Forest Park, Ga. 30050
Filed Apr. 24, 1987, Ser. No. 42,029
Int. Cl.⁴ A01K *93/00*
U.S. Cl. 43—44.88 14 Claims



1. A fishing float attached to a fishing line controlled by a fisherman, said fishing float comprising:
(a) a buoyant base having an upper portion and a lower portion;
(b) a cavity within the upper portion of said base;
(c) weight means mounted to the lower portion of said base so that the base tends to float in an upright attitude;
(d) a hollow tube for receiving the fishing line and guiding the fishing line into said cavity, said hollow tube being suspended on said float vertically above said cavity;
(e) locking means pivotably mounted within said cavity, said locking means selectively engaging the fishing line and being normally in a locked position which prevents the fishing line from upward and downward movement;
(f) said locking means operating to release the fishing line in response to a first pulling force on the fishing line by the fisherman; and
(g) said locking means operating to relock the fishing line in response to a second pulling force on the fishing line,
wherein said fishing line passes through said hollow tube and in operative relation with said locking means so that, when said first pulling force is exerted on said fishing line by the fisherman, said locking means will release the fishing line allowing said line to pass upwardly and downwardly through said locking means freely.

4,757,636
INSULATED AERATED LIVE BAIT BUCKET

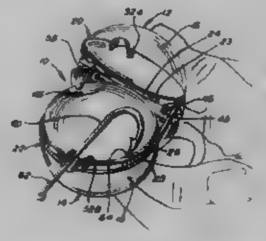
Robert G. Lambourn, 3412 W. Fairway Dr., McHenry, Ill. 60050
Filed Oct. 22, 1987, Ser. No. 112,740
Int. Cl.⁴ A01K *97/04*
U.S. Cl. 43—57 20 Claims



1. A live bait bucket, comprising:
(a) a container for water formed with a bottom wall and a side wall, said bototm wall having an aperture therein for the admission of air to said water, said side wall having one end joined to said bottom wall and an opposite end defining the top of said container;
(b) an insulated liner for said container, said liner fitting within said side wall and on top said bottom wall, said liner having a top end and having a bottom end with an opening therein which is in alignment with said aperture in said bottom wall; and
(c) holding means, removably carried by said container, for holding said liner within said container.

4,757,637
FISH HOOK PROTECTION AND FLOAT DEVICE

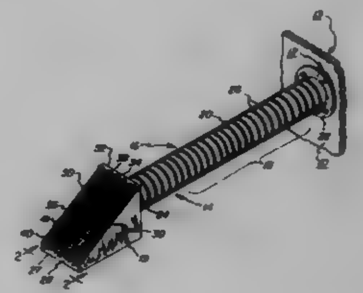
Everett B. Christensen, 705 E. Park Ave., Staples, Minn. 56479
Filed Apr. 2, 1987, Ser. No. 33,249
Int. Cl.⁴ A01K *97/06*
U.S. Cl. 43—57.1 30 Claims



1. A hook protecting device, comprising
a first enclosing half and a second enclosing half, each enclosing half having an exterior surface and each exterior surface terminating in a perimeter edge, the perimeter edges including means for providing overlapping cooperation between the perimeter edges when in a closed position relative to each other, and when in the closed position the exterior surfaces of the enclosing halves defining a hook enclosure space,
a fulcrum portion integral with each enclosing half and adjacent each perimeter edge,
an opening flange, integral with each fulcrum portion and extending therefrom at an oblique angle, the flanges for opening the enclosing halves relative to each other about the fulcrum portions thereof,
an annular recess extending around and defined by the exterior surface of the first and second enclosing halves,
resilient closure means extending around the first and second enclosing halves in the annular recess for biasing the enclosing halves in the closed position, and
the perimeter edges defining a hook shank hole extending through the exterior surface of the enclosing halves into the enclosure space defined by the enclosure halves when in the closed position.

4,757,638
BAT ELIMINATION DEVICE

David Lafforthun, 1431 W. Galway Rd., Galway, N.Y. 12074
Filed May 14, 1987, Ser. No. 49,398
Int. Cl.⁴ E04B *1/72*
U.S. Cl. 43—66 4 Claims



1. A device for eliminating bats from the interior of a structure having a structural opening through which said bats enter and exit said interior, said device comprising:
a housing having a tubular-shaped entry passage and a prism-shaped exit chamber;
said entry passage being radially corrugated and having a first end and a second end, said first end being mountable to said structure such that it substantially covers said structural opening and allows said bats occupying the interior of said structure to enter said housing, and said second end of said entry passage being secured to said exit chamber and providing entry to said exit chamber; and
said exit chamber having a screen door pivotally secured thereto, said door pivoting in and outward direction when pressure is applied thereto from within the housing, said screen allowing airflow through the housing to identify for said bats the housing as an exit from said interior, said prism shape of said chamber facilitating exit of bats from said housing, whereby said radial corrugations of said entry passage allow the elimination device to be positioned over a structural opening of any orientation with said prism-shaped exit chamber depending downwardly.

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POWER SNARE

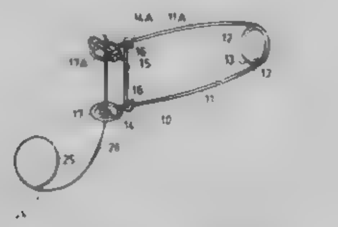
Bruce H. Bertram, Box 172, Birtle, Manitoba, Canadr R0M 0C0

Filed Feb. 26, 1987, Ser. No. 19,033

Claims priority, application Canada, Jun. 27, 1986, 512688

Int. Cl.⁴ A01M *23/34*

U.S. Cl. 43—87 14 Claims



1. An animal trap comprising in combination a pair of arms, a heavy duty hairpin spring joining said arms by one end thereof and normally urging the distal ends of said arms apart, and an eye loop formed on the distal end of each of said arms, a free running snare loop formed in one end of a standing part of a snare wire, the distal end portion of said standing part extending through one of said eye loops and means to detachably retain said distal end in the other of said eye loops, trigger means in said one eye loop cooperating with said standing part to detachably hold said eye loops juxtaposed with one another in a "set" position whereby said eye loops are urged apart from one another by said spring means when said trigger means is released, said trigger means comprising a trigger plate secured across part of said one eye and having a free edge, a slot formed in said free edge and a trigger block secured to said standing part of said snare wire and spanning said slot when said trap is in the "set" position, with said standing end passing through said slot.

4,757,640

CULTIVATION OF MORCHELLA

Ronald D. Ower, deceased, late of San Francisco, Calif. (by George A. Yeoman, executor); Gary L. Mills, East Lansing, and James A. Malachowski, Haslett, both of Mich., assignors to Neogen Corporation, Lansing, Mich.

Continuation-in-part of Ser. No. 728,176, Apr. 29, 1985, Pat. No. 4,594,809. This application Jun. 11, 1986, Ser. No. 872,823

Int. Cl.⁴ A01G *1/04*

U.S. Cl. 47—1.1 14 Claims

1. A method for culturing ascocarps of species of the genus Morchella comprising
  generating nutrient-primed mycelia in an aqueous nutrient medium,
  providing a nutrient-poor substratum and inoculating said nutrient-primed mycelia into said substratum,
  inducing said nutrient-primed mycelia to enter the sexual reproductive cycle of such species, and
  maintaining conditions appropriate for development of ascocarps of such species.

4,757,641

DECORATIVE DEVICE FOR CAMOUFLAGING A WELL CASING

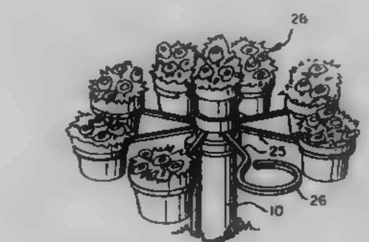
Bernice B. Penrod, Tipp City, Ohio, assignor to Dayton Precision Mfg. Co., Dayton, Ohio

Filed Jul. 13, 1987, Ser. No. 72,374

Int. Cl.⁴ A47G *29/00;* **F41H** *3/00*

U.S. Cl. 47—39 11 Claims

1. A decorative device for camouflaging a well casing which projects above the ground, comprising:
  (a) a base plate adapted to be secured on the upper end of said casing.
  (b) said base plate having in the upper surface thereof a plurality of slots radiating from the center thereof,
  (c) a plurality of rod members each having an inner end proportioned to fit in one of said slots and an outer end configured to support a flower pot or the like, and



  (d) means for clamping said rod members in said slots comprising a cap member and means for securing said cap member in clamping relation with said base plate with respect to said rod members.

4,757,642

SELF-CLOSING SLIDING DOOR SYSTEM

Michael D. Hahn, Beatrice, Nebr., assignor to The Store Kraft Manufacturing Company, Beatrice, Nebr.

Filed Feb. 25, 1987, Ser. No. 18,714

Int. Cl.⁴ E05D *13/04*

U.S. Cl. 49—449 7 Claims

1. A self-closing sliding door system, comprising:
a frame defining an aperture;
a door mounted in said frame for bidirectional sliding movement along a path for opening and closing said aperture;
said door having an edge surface aligned with said path;
a coil spring having a relaxed state in which said spring comprises a coil portion having a plurality of convolute-wound turns and a tongue extending generally targentially from an outermost turn of said coil portion to provide a free end for said coil spring;
said frame having a surface aligned with said path;
means securing said free end of said coil spring to one of said door and said frame so as to dispose said coil spring for unrolling along the respective said surface as said door is slid along said path for opening said aperture;
means fixed to the other of said door and said frame and projecting therefrom transversally of said path into engaging relation with said coil portion for retaining said coil portion against movement along said path and for providing a surface against which said coil is disposed to roll as said coil spring rolls and unrolls for correspondingly lengthening and shortening said tongue;
a manually unlockable, self-locking normally fully thrust lock plunger mounted to said other of said door and said frame; and
a keeper mounted to said one of said door and said frame at a position relative to said lock plunger which permits said lock plunger to fully thrust into a kept condition in relation to said keeper only when said door fully closes said aperture, and said tongue being interposed for thrust-inhibiting relation with said lock plunger when said door is slid sufficiently along said path that said lock plunger has cleared said keeper.

4,757,643

ELASTIC SEAL FOR A DISPLACEABLE PANEL OF AN OPEN ROOF CONSTRUCTION FOR A VEHICLE

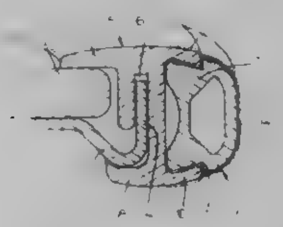
Robert T. Boots, GZ Haarlem, Netherlands, assignor to Vermeulen-Hollandia Octrooien II B.V., Netherlands

Filed Oct. 23, 1986, Ser. No. 922,167

Claims priority, application Netherlands, Nov. 26, 1985, 8503254

Int. Cl.⁴ E06B *7/16*

U.S. Cl. 49—488 8 Claims



1. An elastic seal for a displacement panel of an open roof construction for a vehicle, the panel having a plurality of rounded corners portions with side portions therebetween, comprising a mounting section
  disposed along the periphery of the panel and a hollow sealing section made of elastic material arranged outwardly of the said mounting section, the sealing section having an outer border, wherein the mounting section has a pair of spaced flanges which taper toward each other at outer ends and which receive the sealing section,
  the outer ends of the flanges of the mounting section are moved together when the mounting section is bent to conform to the rounded corner portions of the panel so the flanges exert a force upon the sealing section around the corner portions to move the outer border away from the mounting section more than at the side portions of the panel so as to maintain a substantially constant distance between the outer border of the sealing section and the mounting section throughout the entire periphery.

4,757,644

METHOD AND APPARATUS FOR MANUFACTURING AND MACHINING GEARS

Manfred Erhardt, Puchheim, and Herbert Loos, Dorfen-Stadt, both of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co., Munich, Fed. Rep. of Germany

Continuation of Ser. No. 673,802, Nov. 21, 1984, abandoned. This application Feb. 12, 1987, Ser. No. 14,144

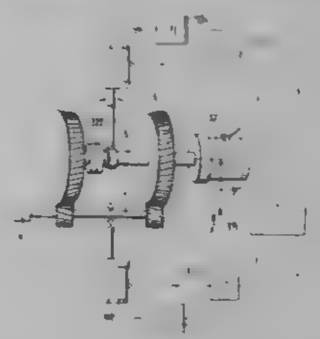
Claims priority, application Fed. Rep. of Germany, Dec. 9, [illegible]

The portion of the term of this patent subsequent to Sep. 1, 2004, has been disclaimed.

Int. Cl.⁴ B24B *5/00*

U.S. Cl. 51—105 GG 4 Claims

1. In an apparatus for the precision working of a tooth system of a rotary supported gearlike workpiece by rolling the teeth of said gearlike workpiece with teeth on a rotatably supported gearlike tool, said workpiece and said tool being capable of movement toward and away from each other so as to effect a change in the center distance therebetween and incapable of an axial movement during said precision working, the axes of rotation of said workpiece and said tool being spaced along a common normal and crossed, said tool having an abrasive surface means thereon formed hyperboloidally in the axial dimension so that when said workpiece and said tool are engaged, at least one of said teeth of said tool is engaged with normal backlash by at least one of said teeth on said workpiece over the entire axial length thereof by the tool teeth, backlash control means being provided for adjusting and maintaining the relative positions between the teeth on said workpiece/tool so that the operatively engaged combination of said workpiece/tool is entirely backlash free, the improvement comprising a controllable first-adjusting means for changing the center distance between said axes of rotation of



said workpiece and said tool and a controllable second adjusting means for adjusting a crossed axes angle between said axes of rotation of said workpiece and said tool, and control means for simultaneously interdependently controlling said first and second adjusting means to effect an enlarging of the center distance and a corresponding change of the cross axes angle to the enlarging center distance in consideration of a pitch angle of the workpiece teeth, so that during the entire interval that said center distance is enlarged and said teeth on said workpiece are engaged by said teeth on said tool over the entire axial length of each of said tool teeth, a removal of any grooves and other imperfections in the surface of said teeth on said workpiece caused by imperfections on said teeth of said tool will occur.

4,757,645

CUTTING TOOL AND METHOD OF MAKING SAME

Theodore Ozer, Wallingford, and Brian Behringer, Norwood, both of Pa., assignors to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1982, Ser. No. 429,309

Int. Cl.⁴ B24D *7/18*

U.S. Cl. 51—206 R 11 Claims

1. A rotary cutting tool, comprising:
a substrate body defining an axis of rotation and two intersecting outer surfaces; and

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a plurality of grit particles adhered to both surfaces and at approximately the intersection of both surfaces, wherein:
- (i) a substantial number of grit particles along both surfaces and at approximately the intersection of both surfaces include a substantially flat outer surface defining at least one cutting edge; and
- (ii) the substantial number of grit particles at approximately the intersection of both surfaces include a further substantially flat outer surface defining at least one additional cutting edge, said further substantially flat outer surface being inclined relative to said axis.

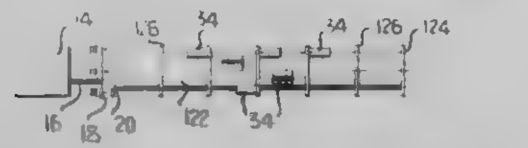
4,757,646
BOOM FOR WIRE COIL BLASTING APPARATUS

Ronald L. Goetz, Greencastle, Pa., assignor to Pangborn Corporation, Hagerstown, Md.

Filed Mar. 16, 1987, Ser. No. 26,199

Int. Cl.⁴ B24B *3/08*

U.S. Cl. 51—410 12 Claims



1. A wire coil support comprising an elongated boom having means at one end for mounting said boom for rotation in an abrasive throwing chamber, said boom being in the form of an elongated shaft carrying in spaced longitudinal relation annular plates in the form of splitters for axially separating coil strands, said boom being improved by providing said shaft with radial lifters between at least certain of said splitters, said radial lifters forming means for radially separating coil strands by radially displacing separate sets of coil strands.

4,757,647
APPARATUS FOR SURFACE TREATMENT OF DISCRETE WORKPIECES

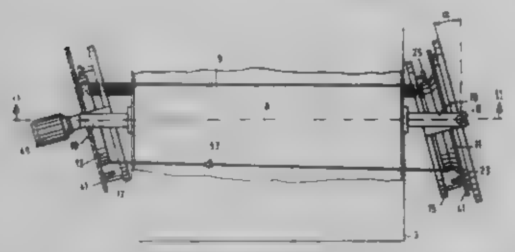
Werner Hunziker, Im Köpfli 262, CH-5054 Kirchleerau, Switzerland

Filed Feb. 28, 1986, Ser. No. 834,938

Claims priority, application Switzerland, Jun. 19, 1985, [illegible]

Int. Cl.⁴ B24C *3/08*

U.S. Cl. 51—417 24 Claims



1. Apparatus for continuously changing the orientation of workpieces, comprising an elongated receptacle rotatable about a substantially horizontal axis and having a tubular shell including a plurality of spaced-apart elongated components each extending in substantial parallelism with said axis and each having a first and a second end portion, said shell having a lower portion at a level said axis, an upper portion, a first end portion arranged to receive workpieces, and a second end portion, said receptacle further comprising substantially parallel first and second end walls connected to the respective end portions of said components; means for rotating said shell about said axis; and means for reciprocating said components, at least in the lower portion of said shell, to thereby advance the workpieces from said first end portion toward said second end portion of said shell, said reciprocating means including means for maintaining said end walls at an oblique angle with reference to said axis while said shell rotates about said axis.

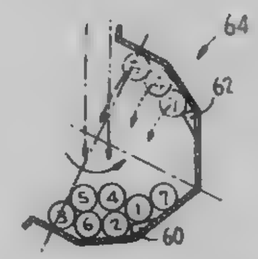
4,757,648
ROCKER BARREL CONFIGURATION

James H. Carpenter, Hagerstown, Md., and Donald M. Barnhart, Martinsburg, W. Va., assignors to Pangborn Corporation, Hagerstown, Md.

Filed Aug. 4, 1986, Ser. No. 892,438

Int. Cl.⁴ B24C *3/30*

U.S. Cl. 51—423 8 Claims



1. A rocker barrel comprising a multisided open top barrel mounted for oscillation about a generally horizontal axis, said barrel including two bottom sides joined together at a bottom of said barrel, and at least two further sides joined to said two bottom sides, and a sloping kicker carried by each of said bottom sides adjacent said further sides, each of said kickers having an end abutment surface facing a respective one of said further sides and a sloped surface extending from the end abutment surface in a direction toward the joint of the two bottom sides to increase the tumbling movement of the workpieces as the barrel is oscillated.

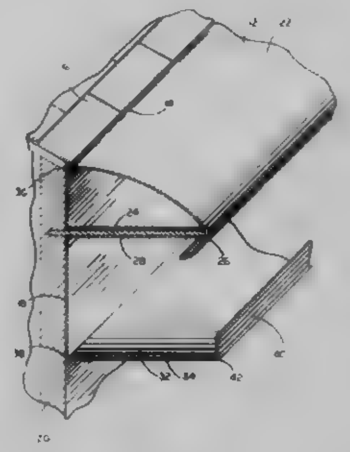
4,757,649
LEAF REJECTING RAIN GUTTER

Wayne Vahldieck, Massapequa Park, N.Y., assignor to Yoder Manufacturing, Bedford Heights, Ohio

Filed Apr. 27, 1987, Ser. No. 42,502

Int. Cl.⁴ E04D *13/06*

U.S. Cl. 52—12 20 Claims



1. An elongated gutter system for mounting under the edge of a roof of a structure, for receiving water run off in preference to leaves and debris, said gutter comprising:

a back support wall having a top and a bottom, for mounting against a wall of the structure,

a shield having a front and a back, permanently joined at its back with the top of said back support wall,

a trough, integrally mounted to the bottom of said back support wall,

said trough including a bottom extending from said back support wall, said bottom including a front wall having an inner face facing toward said back support wall, said trough's back support wall, bottom and front wall inner faces, defining an opening,

said shield comprising a continuous, double-curved convolute the curve of which extends from the back wall, does not extend beyond the tangent to a vertical drawn from said inner face of the trough's front wall, and which turns inward over said trough before it ends, so that leaves and debris falling with an angular component received from the convolute surface generally pass beyond the lip, said shield not extending beyond said tangent to a vertical drawn from said inner face, for covering said trough opening,

unitary means for fastening, passing through the shield at its front, passing generally horizontally under the shield, directly through said back support wall for passing into the structure's wall for fastening the gutter system to the structure wall,

said means for fastening including means for spacing the shield front from the back support wall.

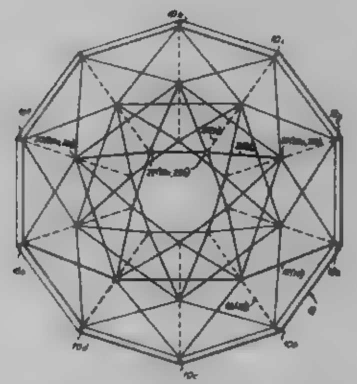
4,757,650
CABLE DOME SYSTEM WITH MAIN CABLES ORIENTED ALONG CHORDS

Horst L. Berger, 18 Chestnut Dr., Hastings-on-Hudson, N.Y. 10706

Filed Sep. 30, 1986, Ser. No. 913,337

Int. Cl.⁴ E04B *7/14*

U.S. Cl. 52—81 14 Claims



1. A cable dome system comprising:

a substantially rigid, generally laterally extending edge ring which has cable attachment nodes;

outer compression struts which in plan view are spaced radially inwardly from the edge ring;

lower outer main cables which connect respective edge ring cable attachment nodes and each of which intersects two other lower outer main cables at two respective lower outer strut nodes, wherein each outer strut is supported at a respective lower outer strut node by two lower outer main cables and extends upwardly therefrom;

inner compression struts which in plan view are spaced radially inwardly from the outer struts;

lower inner main cables which connect upper portions of respective outer struts and each of which intersects two other lower inner main cables at respective lower inner strut nodes, wherein each inner strut is supported at a respective lower inner strut node by two lower inner main cables and extends upwardly therefrom;

an upper structure supported by the edge ring and by upper portions of the outer and inner struts; and

a roof membrane covering at least a part of the system.

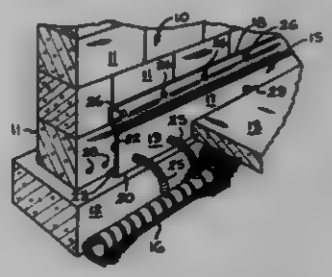
4,757,651
WALL SYSTEM

Michael K. Crites, Elida, Ohio, assignor to Crites Enterprises, Inc., Elida, Ohio

Filed Jul. 24, 1987, Ser. No. 77,650

Int. Cl.⁴ E04B *1/70*; E04F *17/00*

U.S. Cl. 52—169.5 8 Claims



1. A wall system for use on a vertical longitudinally extending wall, the wall extending upwardly from a footer, a floor extending from said wall above said footer, said floor having an upper surface, said wall system comprising a drain conduit positioned beneath said floor adjacent said footer and extending generally parallel to such wall, a longitudinally extending collection member mounted on such wall adjacent such footer, said collection member having a top portion, a body portion and a lower edge portion, said top portion being attached to such wall and the lower edge portion positioned adjacent such footer, said body portion being spaced from such wall defining a water collection chamber with such wall, a plurality of vent holes defined by said body portion of said collection member, and a plurality of connector conduits positioned below said floor surface extending between the said body portion of said collection member and said drain conduit to remove water from such water collection chamber and transfering it to said drain conduit.

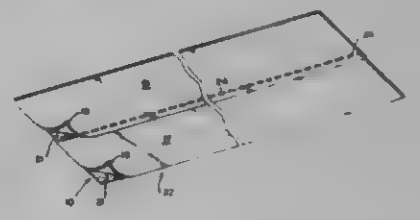
4,757,652
ROOFING PRODUCT

[illegible] Kalkanoglu, Swarthmore, Pa., assignor to Tarmac Roofing Systems, Inc., Wilmington, Del.

Filed Aug. 5, 1987, Ser. No. 81,818

Int. Cl.⁴ E04D *1/10*

U.S. Cl. 52—173 R 4 Claims



1. A roofing product including a roll of material, said roll of material having roofing granules on its top surface thereof, a selvedge arranged along the length of the product for overlapping several of the products on a roof, silicone coated two section release film positioned on the back surface of the product, the release film on the back of the product being split to permit the material to be flopped back, so that one side is stuck and the other side is then dropped down and stuck, the compo-

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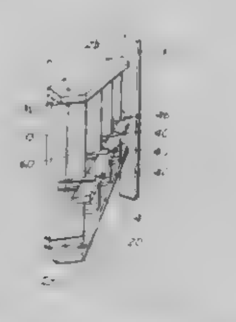
sition of the product consisting of polymer-modified bitumen which makes the product self-adhering, and a fiberglass reinforcement arranged on the inside of the product.

4,757,653
STAIR BRACKET SYSTEM

Grant Anderholm, 441 Mountain View Ave., Santa Rosa, Calif. 95407
Filed Jan. 23, 1987, Ser. No. 6,116
Int. Cl.⁴ E04F *11/00*
U.S. Cl. 52—182 6 Claims



1. A stair bracket system for a stairway having a left, center, and right stringer, said left and right stringer each having an inside surface, and at least one step having a left and right side for attachment to said stringers, comprising:

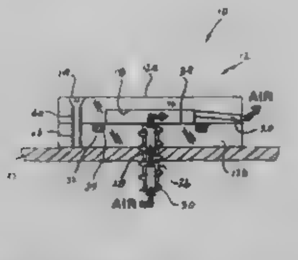
a left stair shoe bracket having a horizontal support portion for removable attachment to the left side of said step, and a vertical plate portion for removable attachment to the inside surface of said left stringer;

a right stair shoe bracket having a horizontal support portion for removable attachment to the right side of said step, and a vertical plate portion for removable attachment to the inside surface of said right stringer; and

a center horse bracket having a horizontal support portion for removable attachment to said step, and a vertical plate portion for removable attachment to said center stringer, wherein when said step is attached to said brackets, and said brackets are attached to said stringers, said step is captured between but does not itself physically contact said left and right stringers, and is supported by but does not physically contact said center stringer.

4,757,654
BLISTER PRESSURE RELIEF VALVE

Charles J. Korhonen, Etna, and Frederick C. Gernhard, Lyme, both of N.H., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Feb. 13, 1987, Ser. No. 14,574
Int. Cl.⁴ E04B *7/00*
U.S. Cl. 52—199 26 Claims



1. An apparatus comprising:

a roof structure having a top and a bottom layer and at least one intermediate layer between said top and bottom layers;

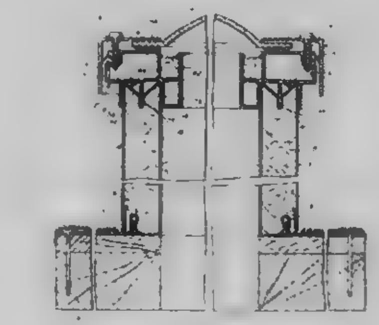
a housing having an interior chamber in fluid communication with the exterior of said housing via a fluid passage;

an open-ended hollow shaft having a first portion disposed in said housing in fluid communication with said chamber, and a second portion extending from said housing communicating with said intermediate layer of said roof structure; and

a membrane disposed over the open end of said first portion of the shaft to separate said shaft end from said chamber, said membrane being gas permeable and liquid impermeable to permit passage of gases across said membrane and preclude passage of liquid across said membrane, thereby allowing gases to be vented from said intermediate layer of said roof structure without allowing liquid to penetrate into said intermediate layer of said roof structure.

4,757,655
SKYLIGHT CONSTRUCTION

Arthur P. Jentoft, Kennebunkport, and Paul A. Couture, Emery Mills, both of Me., assignors to Wasco Products, Inc., Sanford, Me.
Continuation of Ser. No. 472,562, Mar. 7, 1983, abandoned, which is a division of Ser. No. 249,072, Mar. 30, 1981. This application Jul. 29, 1987, Ser. No. 79,217
The portion of the term of this patent subsequent to Oct. 18, 2000, has been disclaimed.
Int. Cl.⁴ E04B *7/18*
U.S. Cl. 52—200 11 Claims



1. A skylight construction for an opening in a building comprising;

a curb frame extending about the opening,

translucent or transparent means covering the opening and extending at its edges to the curb frame,

means for retaining the covering means on the curb frame,

and support means for the curb frame including inner and outer walls defining a space therebetween for insulation means and wherein the curb frame has a pair of vertically extending and adjacently disposed recesses with each wall having an upper end means for engaging into its corresponding curb frame recess.

4,757,656
LINTEL SYSTEM

John A. Powers, Jr., 4608 N. 65th St., Scottsdale, Ariz. 85251
Filed Nov. 19, 1987, Ser. No. 122,778
Int. Cl.⁴ E04B *2/54;* E06B *1/00*
U.S. Cl. 52—204 8 Claims

1. A lintel system for spanning the top of an opening in a wall and providing superincumbent support, said lintel system comprising:

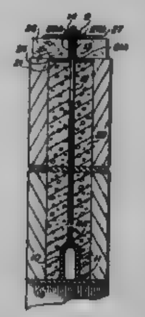
(A) a flange plate adapted to rest on the wall adjacent both sides of the opening to span the opening, said flange plate having generally parallel upper and lower faces and parallel elongated side edges;

(B) an elongated reinforcing structure integral with said flange plate, said reinforcing structure having a cross section generally in the shape of an inverted "U" and being fixed to said upper face of said flange plate at a position intermediate said side edges;

(C) a plurality of primary reinforcing rods fixed to said reinforcing structure, said primary reinforcing rods being distributed along the length of said reinforcing structure and extending upwardly in a direction perpendicular to said parallel faces of said flange plate;

(D) a first course of masonry blocks laid over said flange plate and encompassing said primary reinforcing rods along a lower portion of their respective lengths said first course employing special lintel masonry blocks;

(1) each said special lintel masonry block having an elongated cavity opening from the full length of its lower surface and having an inverted "U" cross section dimensioned and configured to receive a corresponding length of said reinforcing structure;



(E) a second course of masonry blocks laid over said first course and encompassing at least a portion of the remaining length of said primary reinforcing rods extending upwardly from said special lintel masonry blocks, said second course employing modified masonry blocks;

(1) each said modified masonry block including transverse webs and transverse shallow hollows situated intermediate the upper surface of each said transverse web;

(F) an upper plate adapted to rest within said transverse hollows of said masonry blocks of said second course, said upper plate having generally parallel upper and lower faces and parallel elongated side edges, said upper plate having a thickness equal to the depth of said hollows; and

(G) a charge of mortar filling said first and second masonry block courses and enveloping the portions of said primary reinforcing rods disposed therewithin and said lower face of said upper plate.

4,757,657
FLOOR-TO-CEILING WALL SYSTEM

Terry L. Mitchell, Jenison; Glenn D. Stell, Grand Rapids, and Lawrence J. Spoolstra, Byron Center, all of Mich., assignors to Architectural Wall Systems, Inc., Grand Rapids, Mich.
Continuation-in-part of Ser. No. 869,439, Jun. 2, 1986, Pat. No. 4,709,517. This application Oct. 1, 1986, Ser. No. 914,134
Int. Cl.⁴ E04H *1/00*
U.S. Cl. 52—241 19 Claims

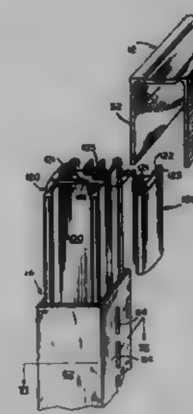
1. A floor-to-ceiling partition system comprising:

a telescoping stud including a lower portion, an upper portion including an upper end, and a pair of outwardly facing opposite sides, telescopically received in said lower portion;

at least one resiliently compressible friction member mounted on said upper portion of said stud in the vicinity of the upper end thereof, such that said friction member is located on at least one of the outwardly facing opposite sides of said upper portion of said stud, said upper portion of said stud comprises a slot in at least one of said opposite sides thereof, said compressible friction member includes a prong flange projecting rearwardly therefrom, said prong flange on said compressible friction member being frictionally received within its respective slot;

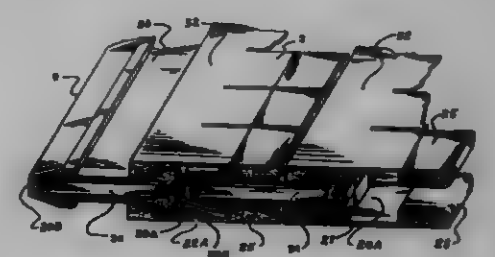
a ceiling channel, with a longitudinal axis, for securing to the ceiling of a room and including downwardly depending channel sidewalls;

said upper end of said upper portion of said stud being received within said ceiling channel and being dimensioned relative to said ceiling channel such that said compressible friction member is in frictional engagement with at least one of said channel sidewalls of said ceiling channel such that the upper end of the upper portion of said stud is movably secured within said ceiling channel for movement along the longitudinal axis of the ceiling channel, wherein the freedom of movement of said upper end of said stud includes a linear sliding motion and an arcuate swinging motion.



4,757,658
PANEL STRUCTURE WITH COMPOSITE COUPLING

Charles E. Kaempen, 3207 [illegible] Dr., Orange, Calif. [illegible]
Division of Ser. No. 716,565, Mar. 27, 1985, Pat. No. 4,680,933. This application Apr. 1, 1987, Ser. No. 33,573
Int. Cl.⁴ E04C *1/00;* D02G *3/44*
U.S. Cl. 52—309.16 3 Claims



1. A multiple ply composite flanged coupling structure disposed on a longitudinal axis thereof to form a body member, a spring member, a hinge line joining said body member and said spring member together and a flange member connected on an extremity of said spring member, said coupling structure comprising:

a first ply comprising a multiplicity of tensioned, compacted and unidirectional twines at least in part forming a first body constituent of said body member, the spring constituent of said spring member and a first flange constituent of said flange member, each of said twines comprising a multiplicity of continuous first filament strands with each said first filament strands having a helical configuration extending at least generally sinusoidally in the direction of said axis;

a second ply comprising a multiplicity of tensioned compacted, unidirectioned and continuous second filament

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strands disposed on and extending transversely relative to said first filament strands and said axis to form a second body constituent of said body member and defining said hinge line, and
hardenable adhesive means impregnating the filament strands of said first and second plies to form a hardened bonding matrix therefor and to maintain said spring member in cantilevered relationship on said body member at said hinge line, said hinge line being straight and located on a side of said first body constituent opposite to the side thereof facing said axis, and said spring constituent being a tensile loaded member of unit width constructed to resist a coupling tensile load applied to said unit width in a direction parallel to said axis while said first spring constituent is in an undeflected condition, and
a panel structure having a third ply and wherein said spring constituent is flat, said coupling structure is formed on a first extremity of said panel structure and at least some of said twines are superimposed upon said third ply.

4,757,659

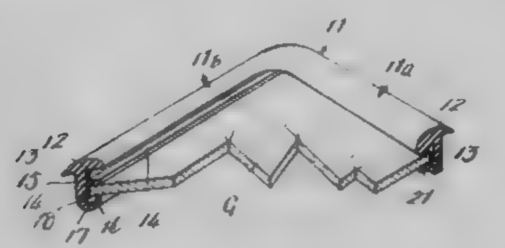
FRONT GLASS MOULDINGS

Naohisa Miyakawa, Nagareyama, and Siyosuke Seto, Daifu, both of Japan, assignors to Tokiwa Chemical Industries Co., Ltd., Chiba, Japan

Filed Dec. 4, 1986, Ser. No. 939,435

Int. Cl.⁴ E04B *1/62*

U.S. Cl. 52—400 2 Claims



1. A front glass moulding comprising an integrally formed synthetic resin body having a top and a leg extending downwardly from said top;
said body having a central portion and two side portions each being connected at one end thereof to the respectively adjacent end of said central portion;
said central portion including a front glass receiving groove positioned below said top;
said side portions each including a rainwater guide positioned below said top and a front glass receiving groove positioned below said rainwater guide in spaced relation thereto;
said front glass receiving grooves in the central and side portions cooperating with each other to support a front glass pane;
each said two side portions having a first and second arm, said first arm extending outwardly from said leg below said top and in substantially parallel and spaced relation to said top, said first arm defining with said top and with said leg said rainwater guide, and said second arm extending outwardly from said leg and below said first arm, said second arm defining with said top, with said leg, and with said first arm said front glass receiving groove;
said central portion having a front glass support board extending outwardly from said leg below said top and in substantially parallel and spaced relation to the top, said glass support board defining with said top and with said leg said front glass receiving groove; and
wherein said glass support board has a dovetailed end received in a correspondingly shaped recess formed in said leg below said first arm.

4,757,660

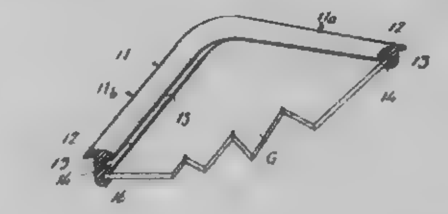
FRONT GLASS MOULDINGS

Naohisa Miyakawa, Nagareyama, and Syosuke Seto, Daifu, both of Japan, assignors to Tokiwa Chemical Industries Co., Ltd., Nagareyama, Japan

Filed Dec. 4, 1986, Ser. No. 939,436

Int. Cl.⁴ E04B *1/62*

U.S. Cl. 52—400 2 Claims



1. A front glass moulding for a vehicle comprising:
an integrally moulded synthetic resin body of T-shaped cross-section having a top and a leg extending downwardly from said top;
at least two vertically spaced arms integrally connected to and extending outwardly from said leg, said arms being substantially parallel to and spaced from said top and from each other to define grooves therebetween, respectively;
said body comprising a central portion having the groove defined between the top of said body and one of said arms being a front glass receiving groove, said body further comprising two side portions each being integrally connected at one end thereof to the respective adjacent end of said central portion, and each said side portion having the groove defined between said top of said body and the upper arm of said at least two arms being a rainwater guide, and each of said side portions having the groove defined between adjacent arms of said at least two arms being a front glass receiving groove; and
said central portion having a cut along a line extending substantially horizontally throughout the length of said central portion below said upper arm to allow removal of said lower arm in said central portion, and each of said side portions having a cut along a line extending upwardly slantingly from the under surface of the side portion at the free end thereof to the other end thereof connected to the adjacent one end of said central portion at the position of the end of said horizontal cut, said upwardly slanting cut allowing removal of the portion of said side portion therebelow.

4,757,661

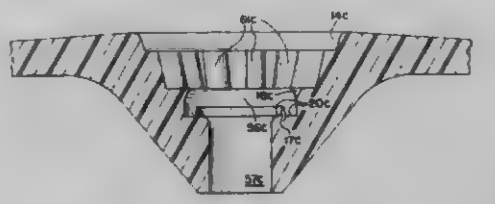
WASHER WITH AXIAL RIBS

Riaz Hasan, Palatine, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 840,152, Mar. 17, 1986, Pat. No. 4,663,910. This application Feb. 17, 1987, Ser. No. 14,878

Int. Cl.⁴ E04D *3/36*; F16J *15/10*

U.S. Cl. 52—410 7 Claims



1. A washer for use in attaching insulation to a roof member with a fastener having a head and an elongated shank, said washer comprising a resilient non-metallic body having a central throughbore, a shoulder formed in said throughbore for engaging the head of a fastener, said shoulder defining and separating upper and lower portions of said throughbore, said upper portion having a maximum lateral dimension greater than that of said lower portion, restraining means formed in said upper portion for engaging a portion of said fastener head and for restricting axial movement thereof, guide means formed in walls of said throughbore in said upper portion, said guide means comprising a series of axially disposed ribs merging with said restraining means, said ribs providing reinforcement to said restraining means against upward movement of said fastener out of said upper portion of said throughbore.

4,757,662

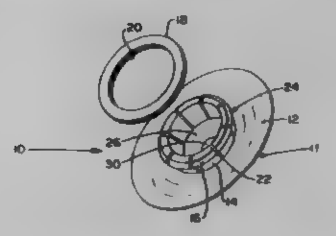
MEMBRANE ROOFING FASTENER

David A. Gasser, Wooster, Ohio, assignor to G.B.R. Enterprises, Wooster, Ohio

Filed Feb. 9, 1987, Ser. No. 12,308

Int. Cl.⁴ E04B *5/00*

U.S. Cl. 52—410 7 Claims



1. A membrane roofing structure comprising:
a base plate, and
a snap ring,
said base plate comprising a unitary structure having a segmented, upper, tapered, circular flange section, a segmented, middle, circular ring-locking section, and a lower base section, said base plate having an axial hole therein, the one end of said hole of having a smaller internal diameter than the other end of said hole, and said snap ring comprising a flat ring having a rounded internal edge, the internal diameter of said snap ring being just large enough to fit over said flange section when the latter is compressed and covered with a roofing membrane, but not large enough to so fit when said flange section is not compressed.

4,757,663

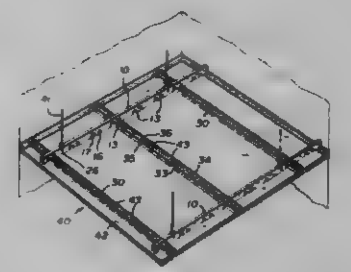
DRYWALL FURRING STRIP SYSTEM

Albert F. Kuhr, Elk Grove Village, Ill., assignor to USG Interiors, Inc., Chicago, Ill.

Filed May 11, 1987, Ser. No. 48,219

Int. Cl.⁴ E04B *5/52*

U.S. Cl. 52—484 8 Claims



1. A structural unit in a building comprising a plurality of carrying channels and a plurality of furring channels attached to said carrying channels attached to said carrying channels at right angles, and means for supporting said unit in the building;
each carrying channel comprising a web and a pair of substantially congruent tongues extending from opposite edges of the web, the distal edge of each tongue being parallel to the web, each tongue having a tab and an elongate finger, the edge of the tab tapering away from the distal edge toward the web and having a recessed seat substantially parallel to the web, the finger projecting from the edge of the tongue opposite the tab in generally parallel but spaced apart relationship with the distal edge, the finger having a retaining hook projecting toward the web and a seat in line with the recessed seat on the tab;
each furring channel having a web and a pair of flanges extending from opposite edges of the web, the flanges having transversely aligned pairs of slots therein, the slots of each pair being spaced apart in alignment with the paired tongues on the carrying channel which extend into the furring channel, the fingers projecting through a pair of slots in one flange, and the tabs protruding through a pair of slots in the other flange.

4,757,664

WEAR RESISTANT PANEL ARRANGEMENT

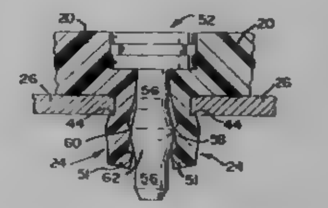
Manfred F. A. Freissle, Johannesburg, South Africa, assignor to Screenex Wire Weaving Manufacturers (Proprietary) Limited, Alberton, South Africa

Continuation of Ser. No. 866,143, May 21, 1986, abandoned. This application May 15, 1987, Ser. No. 53,507

Claims priority, application South Africa, Jun. 4, 1985, 85/4225

Int. Cl.⁴ B07B *1/49*; F16B *13/06*

U.S. Cl. 52—509 1 Claim



1. A releasable fastening arrangement for a wear resistant panel arrangement for fastening the panels of such an arrangement to an apertured support structure in which the fastening arrangement includes a plurality of pins and a plurality of resiliently deformable half tubular protrusions of a synthetic plastic material provided on the peripheral region of the panel integral with the panel and spaced from each other to correspond with the apertures in the support structure so that the half tubular protrusions on adjacent panels can fit in pairs in the apertures in the support structure, each protrusion defining a stepped half bore having at its free end a web blanking off the half tubular bore in the protrusion so that when a pair of such protrusions are fitted in an aperture in the support structure a stepped blind full bore is formed in which one of said pins is insertable to force apart the webs on the blanked off regions of the protrusions to thereby spread the portions of the protrusions projecting from the aperture and to thereby fasten the panels to the support structure;
each said protrusion having an exterior locking shoulder to lock the protrusion in its associated aperture after full insertion of one of said pins;
each said web having a wall thickness generally equal to that of the protrusion adjacent the web;
each said pin comprising a head and a stem;
each said stem having a chamfered leading edge and having substantially cylindrical portions of predetermined diameter adjacent its head and leading end, and an enlarged portion between said substantially cylindrical portions;
each of said bores defined by said protrusions having a first region of relatively large diameter for accommodating the

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head of the pin, a second region of decreased diameter approximately equal to the diameter of the cylindrical portions of the pin, and a third region of further decreased diameter adjacent said webs;

wherein said enlarged portion of said pin comprises a portion of substantially uniform diameter disposed between a tapered leading face of increasing diameter and a tapered trailing face of decreasing diameter, said tapered leading face functioning to force apart said protrusions during insertion of said pin by engagement first with said stepped blind full bore formed by said protrusion, and subsequently by engagement of said webs, said enlarged portion functioning to stably maintain said protrusions in a spread configuration so as to maintain locking engagement of said exterior locking shoulders with said apertured support structure after full insertion of said pin, said trailing face functioning to facilitate subsequent withdrawal of said pin from said bore.

4,757,665

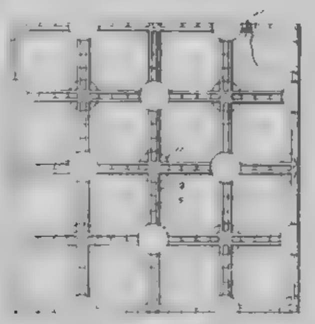
TRUSS PANEL

James S. Hardigg, Conway, Mass., assignor to Hardigg Industries, Inc., South Deerfield, Mass.

Continuation of Ser. No. 302,561, filed as PCT US79/01110 on Dec. 19, 1979, published as WO81/01807 on Jul. 9, 1981, abandoned, which is a continuation-in-part of Ser. No. 759,233, Jan. 13, 1977, Pat. No. 4,180,232. This application Jun. 12, 1987, Ser. No. 61,037

Int. Cl.⁴ E04C *2/30*

U.S. Cl. 52—782 19 Claims



1. A composite panel structure including at least one structural member having a neutral plane secured to one surface of at least one truss member, said at least one truss member having spaced apart top and bottom surfaces each comprised of a plurality of spaced apart individual contact areas, the contact areas forming one of the surfaces being off set from those forming the other surfaces, strut means extending from one surface to the other and arrange obliquely to one another for joining the contact areas in one surface with predetermined contact areas in the other, including a plurality of individual struts extending from each said contact area on one surface toward a like plurality of contact areas on the other surface so that the axis of each of said strut means joining a contact area intersect substantially at the neutral axis of said at least one structural member secured thereto.

4,757,666

APPARATUS FOR FOLDING AND CLOSING A BLANK OF WRAPPING MATERIAL AROUND AN ARTICLE TO BE PACKAGED

Veikko I. Jauhonen, Långvik, 02420 Jorvas, Finland

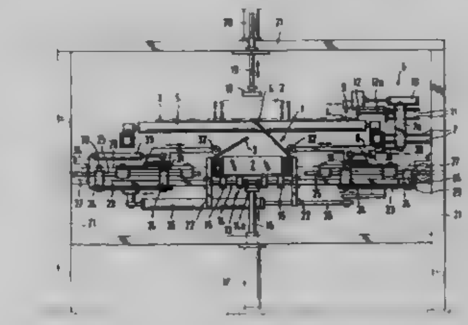
Filed Mar. 2, 1987, Ser. No. 20,854

Claims priority, application Finland, Dec. 17, 1986, 865138

Int. Cl.⁴ B65B *13/20*

U.S. Cl. 53—176 14 Claims

1. An apparatus for wrapping and closing a blank (1) of wrapping material around an article to be packaged, said wrapping blank consisting of a rectangular piece of protective cardboard (3, 4) serving as an outer jacket of the package and of a wrapper element (2), fastened to said protective cardboard and wrappable around an article, and the side edges of such a package can be closed by folding both ends (3, 4) of protective cardboard around the side edges of an article, said apparatus comprising a mechanism for folding the ends (3, 4) of protective cardboard, said mechanism comprising a conveyor track (5, 13) and pusher (32) on either side of its centre axis and movable towards and away from each other by means of a power unit (33) and, in whose position away from each other, said wrapping blank (1) can be conveyed in between said pusher elements (32) for closing the package by driving pusher elements (32) towards each other, characterized in that below said pusher elements (32) are provided holder means (22) adapted to be driven by a power unit (26, 28) towards and away from each other, that pusher elements (32) are adapted to be carried along with holder means (22) and also to be driven by their own power unit (33) relative to holder means (22) in a manner that, as said holder means (22) run against the side edges of package (1) and stop their movement, said pusher elements (32) continue their movement along the top surface of said package, that pusher elements (32) and holder means (22) and a section (13) of the conveyor track aligned therewith are adapted to be movable relative to each other in vertical direction and that above this track section (13) is arranged a press element (18) that can be lifted up and lowered down.



4,757,667

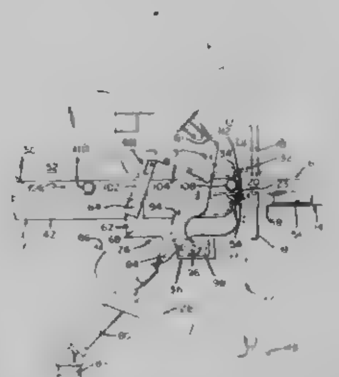
ROLL-WRAPPING METHOD

Bertram F. Elsner, Hanover, Pa., assignor to Elsner Engineering Works, Inc., Hanover, Pa.

Division of Ser. No. 318,623, Nov. 5, 1981, Pat. No. 4,475,651. This application Nov. 14, 1983, Ser. No. 551,085

Int. Cl.⁴ B65B *11/04*

U.S. Cl. 53—415 1 Claim



1. The method of wrapping a cylindrical roll with a transparent circumferential film envelope and confining a label between the envelope and roll, comprising the steps of:

(a) Freely positioning a label formed of non-heat shrink material and having a straight edge against a sheet of transparent heat shrink film with the label edge extending across the width of the sheet;

(b) Electrostatically bonding the edge only of the label to the film sheet while retaining the remainder of the label free of the film;

(c) Wrapping the film sheet with the label bonded thereto around a rigid cylindrical roll with the label confined between the roll and the film and with the edge parallel to the roll axis, severing the film wrapped around the roll from the remainder of the film sheet and bonding together the ends of the wrapped film away from the label to form a circumferential film envelope loosely surrounding the roll with the electrostatic bond holding the label in place within the space between the envelope and the roll;

(d) Rotating the roll with surrounding loose film envelope and electrostatically bonded label along supports and to a film shrink station while maintaining the label in position within said space with the edge parallel to the roll axis; and

(e) Heat shrinking the film envelope tightly onto the roll at the station while maintaining the electrostatic bond between the label edge and the film and sliding the shrinking film envelope along the remainder of the label without buckling the label so as to tightly sandwich the label between the shrunk envelope and the roll at a desired location with the label edge parallel to the roll axis.

4,757,668

METHOD AND APPARATUS FOR FORM-FILL-SEAL PACKAGING OF ARTICLES

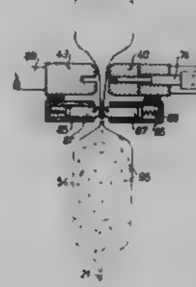
Wolfgang Klinkel, Bigorio, Switzerland, and Dieter Vitz, Neuss, Fed. Rep. of Germany, assignors to ILAPAK Research & Development S.A., Grancia-Lugano, Switzerland

Filed Jan. 22, 1987, Ser. No. 6,623

Claims priority, application Switzerland, Jan. 27, 1986, 304/86; Jul. 31, 1986, 3079/86

Int. Cl.⁴ B65B *9/08, 9/10*

U.S. Cl. 53—451 22 Claims



1. Vertical form-fill-seal packaging apparatus comprising

a supply roll (3) of a continuous flat, flexible film (2),

a former (12) receiving said film and deforming said film into a downwardly extending tubing with lateral longitudinal edge portions overlapping each other;

means (15) for sealing or welding said edge portions (20*a*, 20*b*) of the film, while in tubular form, to form a longitudinally closed tube (20) with a vertically extending longitudinal seal (16);

means (25) for drawing said film continuously over said former (12) and maintaining it in taut condition;

said sealing or welding means (15) comprising a longitudinal sealing or welding jaw (15) for forming said longitudinal vertical seal on said tubing during continuous movement thereof;

jaw drive means (70) for moving said jaw in a straight path parallel to and in a direction of movement of said film edge portions with the speed of feed of said film (3) during sealing of the edge portions and removing said jaw from said film edge portions after sealing and moving said jaw counter the direction of movement of said film edge portions;

a pair of cross-sealing means (40, 43) for forming two spaced cross seals across said tubing, located downstream of said jaw;

means (62, 76, 80, 82) for moving said cross sealing means (40, 43) between an open position and a closed position diametrically across said film tubing (20);

sealing drive means (58,59) for moving said cross-sealing means (40, 43) longitudinally with the film tube (20) upon closing of said cross sealing means on the film tube, and for repetitively moving said cross-sealing means in a return path out-of-engagement with said tubing and counter the continuously feeding direction of said tubing (20);

means (14) for filling the tubing in downward direction between successive cross seals and during downward movement of the tubing; and

means (72) for severing a filled tube portion from the closed tube by engagement of a severing knife (72) between said spaced cross seals.

4,757,669

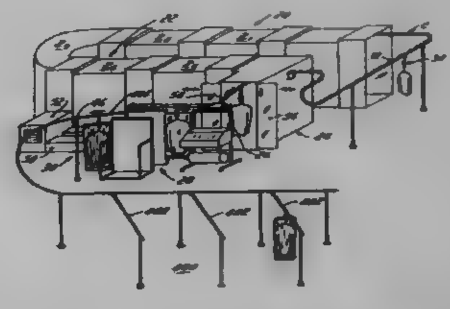
VACUUM PACKAGING MACHINERY AND PROCESS

Sven P. A. Arehlom, Hovas, and Claes-Goeran Rogberg, Lerum, both of Sweden, assignors to Tex Innovation AB, Kungsbacka, Sweden

Continuation of Ser. No. 927,074, Dec. 16, 1986, abandoned, which is a continuation-in-part of Ser. No. 845,896, Mar. 28, 1986, abandoned, which is a continuation-in-part of Ser. No. 331,850, Dec. 17, 1981, abandoned, which is a continuation-in-part of Ser. No. 64,958, Aug. 8, 1979, abandoned, which is a continuation-in-part of Ser. No. 909,930, May 26, 1978, abandoned, which is a continuation-in-part of Ser. No. 735,551, Nov. 1, 1976, abandoned, which is a continuation-in-part of Ser. No. 669,147, Mar. 22, 1976, abandoned. This application Nov. 10, 1987, Ser. No. 119,033

Int. Cl.⁴ [illegible]

U.S. Cl. 53—512 8 Claims



1. An apparatus for wrapping and vacuum packaging a substantially compressible commodity comprising

means for supplying a substantially compressible commodity to a wrapping station;

means for supplying flexible, air impermeable tubular wrapping material having opposed wall sections to said wrapping station from a continuous length source;

means for enveloping said compressible commodity with said wrapping material at said wrapping station such that an unsealed open mouth of said wrapping material extends beyond said compressible commodity;

means to sever said wrapping material enveloping said compressible commodity from said continuous length source and seal the bottom portion of said severed wrapping material to form a commodity-containing bag having a closed bottom and an open mouth;

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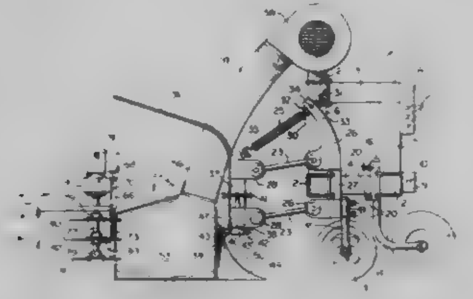
a vacuum packaging station including vacuum packaging means comprising a flexible air impermeable membrane and a substantially co-extensive opposed surface defining therebetween a commodity receiving area for receiving a commodity-containing bag, said membrane comprising a single, flexible, inwardly deformable sheet material positioned between and supported along its entire periphery by a membrane frame in a manner so as to provide an airtight joint between said membrane and said frame, one surface of said membrane facing said co-extensive opposed surface and an opposing surface of said membrane being in communication with ambient air;
means for bringing said substantially co-extensive opposed surface and said membrane-supporting frame into sealing engagement with each other to form a vacuum chamber laterally defined by said opposed surface and said membrane and adapted to contain said open-mouthed commodity-containing bag and enable displacement of air from the bag to be effected, said periphery of said membrane being spaced from said opposed surface upon said frame being brought into sealing engagement with said opposed surface a distance sufficient to permit said membrane to deform inwardly toward said opposed surface upon evacuation of said chamber;
means for advancing said commodity-containing bag to a position between said co-extensive opposed surface and said membrane;
vacuum means for evacuating said chamber to cause inward deformation of said flexible membrane toward said opposed surface to cause displacement of air from said open-mouthed commodity-containing bag, said deformation commencing in the central portion of said membrane and subsequently progressing outwardly therefrom so as to reduce entrapment of air in the commodity-containing bag; and
means for sealing said open mouth portion of said commodity-containing bag subsequent to the displacement of air from said bag.

4,757,670

AGRICULTURAL CROP DEFOLIATOR

Phillip Kinch, 815 - 24th St. North, Lethbridge, Alberta T1H 3V3, and Casey Gouw, Box 1667, Taber, Alberta, both of Canada

Filed Apr. 21, 1986, Ser. No. 854,225
Int. Cl.⁴ A01D *23/02*
U.S. Cl. 56—13.1 **14 Claims**



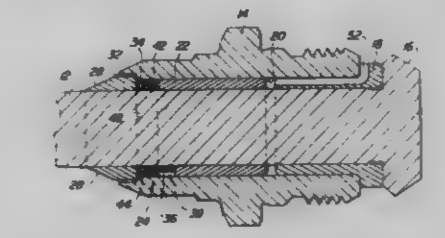
1. An apparatus for removing the top of a plant, comprising casing means including a pair of downwardly extending hollow arm means having ground engaging slide plates along their lower edges for bordering a plant during use; inlet means for introducing air under pressure into each said arm means; opposed discharge means at the bottom inner ends of said arm means for discharging air substantially horizontally against opposite sides of the plant to elevate the top of the plant; and rotary cutter means for cutting the plant top while in the elevated position.

4,757,671

COTTON PICKER SPINDLE SEAL

Kenneth C. McConnell, Ankeny, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jun. 8, 1987, Ser. No. 59,341
Int. Cl.⁴ A01D *46/16*
U.S. Cl. 56—50 **10 Claims**



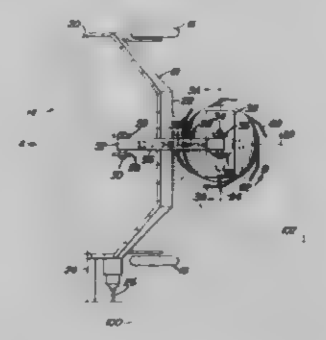
1. A cotton picker spindle assembly comprising:
a cotton picker spindle support having a generally cylindrically shaped bore;
a bushing adapted for receipt within the bore;
a spindle having a cylindrically shaped shaft rotatably supported within the bushing;
a first sealing ring supported at one end of the bushing within the bore and having an inner diameter approximately equal to the outer diameter of the spindle shaft and bearing thereagainst, said spindle being rotatable with respect to the first sealing ring, said first sealing ring including an outer diameter less than the inner diameter of the bore and defining with the bore an annular seal-receiving area;
a second sealing ring mounted over the outer diameter of the first sealing ring within the seal-receiving area, said second sealing ring bearing against the outer diameter of said first sealing ring and the inner diameter of the bore for providing a relatively fluid-tight seal between the non-moving components of the spindle assembly.

4,757,672

MOWER CONDITIONER WITH DOUBLE WINDROWING ATTACHMENT

Andre Roger, Alencon, France, assignor to Deere & Company, Moline, Ill.

Filed Jan. 26, 1983, Ser. No. 461,330
Claims priority, application France, Jan. 29, 1982, 82 01416
Int. Cl.⁴ A01D *43/02*
U.S. Cl. 56—192 **8 Claims**



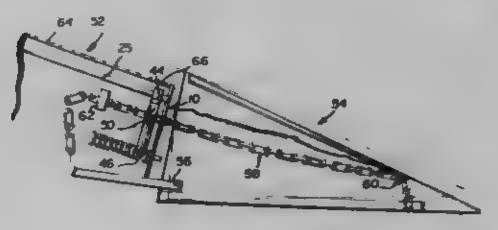
1. In a crop harvesting machine including a unit for moving through a field, removing a crop from the ground and propelling said crop rearwardly of said unit along an airborne path and a windrow grouper mounted to said unit for swinging vertically between a raised position away from said path and a lowered position in said path for combining crop exiting from said unit into a previously formed windrow, the improvement wherein said grouper comprises a top defined by a frame; a support shaft depending from said frame along an upwardly extending axis; a drum mounted to said shaft for rotation thereabout and being located in the airborne path of crop exiting from said unit when the grouper is in its lowered position; a drive means coupled for rotating said drum and a plurality of crop-engaging elements mounted on and extending outwardly from said drum and cooperating with said drum to deflect the airborne crop before the crop has substantial contact with the ground.

4,757,673

[redacted]

Charles Gayman, Smithshire, Ill. 61478

Filed Jul. 29, 1986, Ser. No. 890,365
Int. Cl.⁴ A01D *63/04, 45/02*
U.S. Cl. 56—314 **29 Claims**



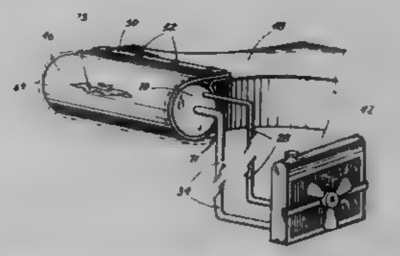
1. A device for fine vertical adjustment of a crop divider pivotally mounted on a crop processing header, said device comprising:
a support member adapted for attachment to a frame member on the crop processing header;
a screw member freely rotatably mounted on said support member;
a fine adjustment element mounted on said screw member; [redacted]
a connecting member mounted on said fine adjustment element for operatively connecting said fine adjustment element to an elongated coarse adjustment member extending between the crop row divider and the crop processing header, said connecting member shaped to permit axial movement of said coarse adjustment member in a first direction during coarse vertical adjustment of said crop divider, and wherein said screw member is oriented so that said connecting member and said fine adjustment element move in a direction substantially perpendicular to said first direction upon rotation of said screw member to thereby effect fine vertical adjustment of said crop divider.

4,757,674

[redacted]

Ira Compton, 2434 Dayton Rd., Chico, Calif. 95928

Filed Nov. 2, 1987, Ser. No. 115,334
Int. Cl.⁴ A01D *46/26*
U.S. Cl. 56—340.1 **5 Claims**



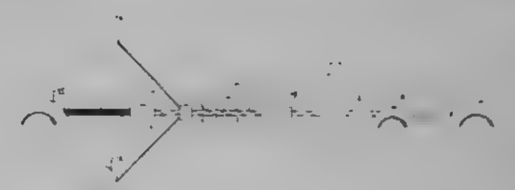
1. A liquid cooled fruit tree shaker pad comprising:
a substantially tubular-shaped primary member longer longitudinally then diametrically and structured of firm rubbery material;
said primary member provided with a multiple of small circularly aligned tubular longitudinal channels manufactured into said firm rubbery material immediate to and uniformly paralleling the exterior longitudinal wall of said primary member;
said primary member provided substantially centrally with a longitudinal bore sized sufficiently larger than said small tubular longitudinal channels to accommodate a volume equal to the combined volume capacity of all said small tubular longitudinal channels; said longitudinal bore and said small tubular longitudinal channels in passage communication with grooved channels manufactured in each end surface of said primary member arranged for complete internal circulation of a fluid therethrough when said grooved channels are end walled by sealed end caps affixed one to each end of said primary member;
one of said sealed end caps apertured centrally in direct alignment with said longitudinal bore to a size suitable for receiving a fluid outlet snap connector affixed with a drain hose and the same said sealed end cap also apertured edgeward in alignment with one said grooved channel conjoining said small longitudinal tubular channels in a size suitable for receiving a fluid inlet snap connector affixed with a fluid inlet hose, said outlet and said inlet hoses attached into a fluid circulatory system as a part thereof;
said circulatory system sufficiently of a closed nature to be charged with and retain a liquid coolant or a low viscosity fluid mixture, there being means for cooling and for causing said liquid or said fluid mixture to course first through said small circularly aligned tubular longitudinal channels and second to be returned via said grooved channels manufactured in the end of said primary member to said longitudinal bore and exited through said outlet snap-in connector into said drain hose and returned to said cooling means.

[redacted]

[redacted] OPTIC CABLE

Michael G. Oglesby, Kansas City, Mo.; Alfred S. Violette, Olathe, Kans.; Michael E. McGuire, Lenexa, Kans., and Kenneth E. Cornelison, Overland Park, Kans., assignors to Ericsson TelecomCable, Overland Park, Kans.

Filed Feb. 18, 1987, Ser. No. 16,128
Int. Cl.⁴ H01B *13/02, 11/22;* G02B *6/04*
U.S. Cl. 57—6 **28 Claims**



1. In a cabling machine for producing a fiber optic cable, an apparatus for minimizing stresses imposed on optical fibers being inserted into at least one channel in the periphery of a cylindrical core, comprising:
a shape capture die for controlling axial rotation of the core while allowing longitudinal translation of the core;
an insertion die for guiding fibers into the channel while allowing longitudinal translation of the core, wherein the insertion die is rotationally fixed with respect to the shape capture die and is located proximate the shape capture die; [redacted]
a core capture means for stopping axial rotation of the core while allowing its longitudinal translation, wherein the

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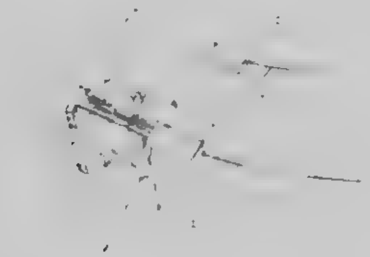
core capture means is located proximate the shape capture die and insertion die.

4,757,676
PNEUMATIC SPLICER WITH THREAD TWISTING MEANS

James W. B. Clayton, Gwent, Wales, assignor to Pentwyn Precision Limited, Great Britain
Filed Jun. 23, 1987, Ser. No. 65,343
Claims priority, application United Kingdom, Jun. 26, 1986, [illegible]
Int. Cl.⁴ D01H *15/00*
U.S. Cl. 57—22 **13 Claims**



1. A yarn or thread splicer having a pneumatic splicing chamber through which the yarns to be joined pass in opposite directions, characterised in that it comprises discrete yarn rolling means disposed adjacent each end of the chamber, each said means for operating on the running end of a respective one of the said yarns, and respective yarn gripping means corresponding to each said yarn rolling means disposed adjacent the respective opposite end of the chamber for gripping the free or broken end of each yarn, said yarn rolling means each engaging a respective yarn and twisting it in a direction to cause unravelling of its strands at the commencement of the splicing operation and retwisting the respective yarn in the opposite direction to cause the normal twist to be restored to the yarn during the termination of the splicing operation.

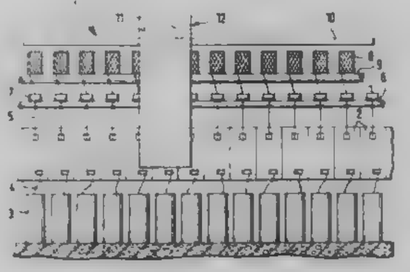
4,757,677
OPEN-END SPINNER PIECING METHOD AND APPARATUS AND MULTI-POSITION FRICTION SPINNER EMBODYING SAME

Alan Smith, Accrington, and George K. Butler, Preston, both of England, assignors to Hollingsworth U. K. Ltd., Accrington, England
Filed Oct. 20, 1986, Ser. No. 921,176
Claims priority, application United Kingdom, Nov. 1, 1985, **8527002**
Int. Cl.⁴ D01H *15/02, 1/135*
U.S. Cl. 57—263 **20 Claims**

1. A method of piecing a friction spinning unit having a main machine drive and fibre feed means and to which fibre is delivered by a fibre feed, comprising the steps of:
- (a) introducing seed yarn from a yarn package or a prewound package support tube supported for rotation on a package winder into the friction spinning unit;
- (b) freeing the yarn at a yarn delivery nip between the friction spinning unit and the package winder so that the seed yarn may be withdrawn by rotation of the yarn package;
- (c) accelerating rotation the yarn package or prewound package support tube and initiating fibre feed to the friction spinning unit; and
- (d) relating the increasing yarn package speed to the speed of the fibre feed means such that the relationship of the fibre feed means to the yarn package speed is effective to provide for a varying draft during acceleration of the yarn package, in that the relationship of the yarn package speed to the speed of the fibre feed means is non-linear during at least a part of the yarn package acceleration.

4,757,678
OPEN-END ROTOR SPINNING MACHINE

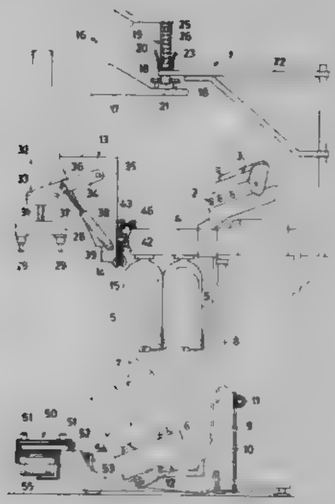
Fritz Stahlecker, Josef-Neidhart-Strasse 18, 7347 Bad Überkingen, Fed. Rep. of Germany, assignor to Hans Stahlecker and Fritz Stahlecker, both of, Fed. Rep. of Germany
Filed Nov. 5, 1987, Ser. No. 117,054
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1986, 3640217
Int. Cl.⁴ D01H *15/02, 7/885*
U.S. Cl. 57—263 **36 Claims**



1. Open-end rotor spinning apparatus having at least one spinning unit having spinning surface means where yarn is formed, comprising:
- yarn withdrawal duct means leading from said spinning surface means in a yarn withdrawal direction;
- yarn deflecting means downstream from said yarn withdrawal duct means in the yarn withdrawal direction for deflecting yarn from said yarn withdrawal duct means in a yarn spinning path during spinning operations, said yarn deflecting means including at least one false-twisting edge; and
- yarn returning means for returning a yarn end to said yarn withdrawal duct means along a piecing path past said yarn deflecting means for piecing operations, wherein the relative position of the yarn deflecting means and the yarn path is different for the spinning and piecing operations.

4,757,679
METHOD AND APPARATUS FOR AUTOMATICALLY DOFFING COPS AND REPLACING THEM WITH EMPTY TUBES IN A ROVING FRAME

Pietro B. Marzoli, Bergamo, Italy, assignor to Fratelli Marzoli & C. S.p.A., Bergamo, Italy
Filed Jan. 28, 1987, Ser. No. 7,515
Claims priority, application Italy, Jan. 28, 1986, 19199 A/86
Int. Cl.⁴ D01H *9/08, 9/10*
U.S. Cl. 57—267 **25 Claims**



1. A method of automatically doffing cops and replacing them with empty tubes in a roving frame, of the type in which the cops are lowered into a position external to flyers and conveyed on to pegs of a conveyor in a zig-zag arrangement, the conveyor then being moved through a certain distance, and the empty tubes, which have been previously loaded on to the conveyor in positions intercalated with the cops, being withdrawn and conveyed on to a lowered cop carrier, the cop carrier then being raised into its working position characterised by the sequential steps of
- (a) lowering cops with the axes thereof disposed in a generally vertical direction,
- (b) orienting the lowered cops to position the axes thereof in an oblique direction defining an acute angle to the vertical.
- (c) removing the lowered cops from the lowered cop carrier by movement of the cops with the axes thereof generally parallel to the oblique direction,
- (d) reorienting the removed cops with their axes again disposed in a generally vertical direction,
- (e) placing the reoriented cops upon the conveyor with the axes thereof disposed in a generally vertical direction,
- (f) raising empty tubes from the conveyor with the axes thereof disposed in a generally vertical direction,
- (g) orienting the raised empty tubes to position the axes thereof in an oblique direction defining an acute angle to the vertical,
- (h) placing the obliquely oriented empty tubes upon the lowered cop carrier by movement of the empty tubes with the axes thereof generally parallel to the oblique direction, and
- (i) re orienting empty tubes with their axes again disposed in a generally vertical direction.

14. An apparatus for automatically doffing cops and replacing them with empty tubes, comprising a device for gripping and conveying the cops and tubes relative to a roving frame, a conveyor for receiving the cops and the empty tubes in respective intercalated zig-zag arrangements, means for lowering a cop carrier to the outside of associated flyers of a flyer support bed into a position in which the cops are gripped, means for the programmed movement of the conveyor, a cop and tube gripping device including a doffing carriage mobile along the face of the roving frame substantially at the level of the flyer support bed, and a plurality of means for sequentially
- (a) lowering cops with the axes thereof disposed in a generally vertical direction,
- (b) orienting the lowered cops to position the axes thereof in an oblique direction defining an acute angle to the vertical,
- (c) removing the lowered cops from the lowered cop carrier by movement of the cops with the axes thereof generally parallel to the oblique direction,
- (d) reorienting the removed cops with their axes again disposed in a generally vertical direction,
- (e) placing the reoriented cops upon the conveyor with the axes thereof disposed in a generally vertical direction,
- (f) raising empty tubes from the conveyor with the axes thereof disposed in a generally vertical direction,
- (g) orienting the raised empty tubes to position the axes thereof in an oblique direction defining an acute angle to the vertical,
- (h) placing the obliquely oriented empty tubes upon the lowered cop carrier by movement of the empty tubes with the axes thereof generally parallel to the oblique direction, and
- (i) reorienting the empty tubes with their axes again disposed in a generally vertical direction.

4,757,680
SPINNING INSTALLATION FOR MAKING CORE SPUN YARNS

Henri Berger, St Germain De L'Espinasse; Michel Clement, and Marcel Schoumacher, both of Roanne, all of France, assignors to Rovatex, Courbevoie, France
Filed Jun. 24, 1986, Ser. No. 877,746
Claims priority, application France, Jun. 25, 1985, 85 09973
Int. Cl.⁴ D01H *5/28;* **D02G** *3/36, 3/38*
U.S. Cl. 57—328 **6 Claims**

1. A spinning installation for making a fiber spun yarn of the type comprising an internal core formed of discontinuous fibers, said core being covered with an external sheath also formed of discontinuous fibers, said spinning installation comprising:
- a false twist spindle which subjects the fibers forming the inner core to a momentary false twist operation;
- a movable guiding surface which projects elementary fibers onto the inner core upstream of the false twist spindle, said elementary fibers being tangentially delivered onto said movable guiding surface, said movable guiding surface having a tendency to exert a pulling force on a free end of said elementary fibers, said core being moved tangentially with respect to said guiding surface along a direction which the elementary fibers are moved by said guiding surface;
- a common drawing system which draws both the fibers which will make up the internal core and the fibers which will make up the external sheath;
- such that at an outlet of the drawing system, a first part of the drawn fibers is delivered onto the movable guiding surface, and a second part of said fibers is initially directed away from said movable guiding surface and then into tangential contact with the movable guiding surface

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downstream of the location where the first part of the fibers is delivered to the movable guiding surface, said first part of the fibers thereby forming the external sheath and said second part forming the internal core;

the installation also comprising a second movable guiding surface which contacts the fibers for forming the inner core between the common drawing system and the movable guiding surface, said second movable guiding surface comprising a rotating guide and a mobile roller, thereby blocking the extension back of twist communicated by the false twist spindle.

4,757,681
LINK PLATE

Kazumasa Matsuno; Takashi Tsujimoto; Takerou Nakagawa; Yasumasa Tubakimoto, and Makoto Kanehira, all of Osaka, Japan, assignors to Tsubakimoto Chain Co., Japan
Continuation of Ser. No. 838,798, Mar. 12, 1986, abandoned. This application Jun. 18, 1987, Ser. No. 63,786
Claims priority, application Japan, Mar. 13, 1985, 60-49778
Int. Cl.⁴ F16G *15/12;* G05G *1/00*
U.S. Cl. 59—84 **6 Claims**

1. A link plate for a chain having a plurality of link plates interconnected by a plurality of cross pin members for pivotally connecting together two said link plates at pivot points located at each end thereof, said link plate comprising an elongated body of high tensile strength fiber material with a circular bearing portion lying at each end for receiving in bearing contact said cross pin members at said pivot points, said circular bearing portions comprising a winding of high tensile strength fiber material circularly wound around said pivot points and, said elongated body comprising a plurality of turns of high tensile strength fiber material wound around both pivot points and extending between said two circular bearing portions, said turns being fixed to each other by adhesive material.

4,757,682
AXIAL FLOW TURBINE

Eugene Bahniuk, Cairn La., Gates Mills, Ohio 44040
Continuation of Ser. No. 736,128, May 20, 1985, abandoned. This application Feb. 3, 1987, Ser. No. 10,471
Int. Cl.⁴ F02C *3/045*
U.S. Cl. 60—39.43 **10 Claims**

1. An axial flow turbine producing propulsion thrust comprising: an engine body;

rotor means mounted in said engine body for free rotation about an axis, said rotor including a hub and a plurality of radially extending blades thereon, said blades having an inlet side and an outlet side and being movable along an annular path about said axis;

compression gas passages in said engine body defining a continuous combustion fluid compression path, said fluid compression path intersecting successively a plurality of different portions of said annular path, said intersecting paths defining a plurality of successive compression zones wherein fluid moving along fluid compression path repeatedly passes axially through said blades from said inlet side to said outlet side during revolution of said rotor means, said compression gas passages connecting the outlet side of one compression zone with the inlet side of the successive compression zone;

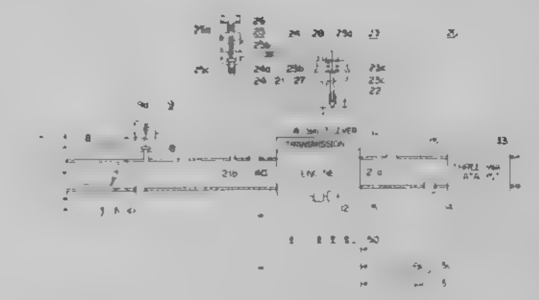
means for injecting fuel into said compression path following said compression zones;

a combustion chamber for receiving said compressed fluid and said fuel;

expansion gas passages in said engine body for directing combustion gases from said combustion chamber axially through a portion of said annular path of said blades from said inlet side to said outlet side to impart mechanical energy to said rotor means to effect rotation of said rotor means about said axis of rotation, said expansion gas passages further directing said combustion gases axially from said turbine to produce thrust.

4,757,683
EXHAUST GAS RECIRCULATION METHOD FOR INTERNAL COMBUSTION ENGINES

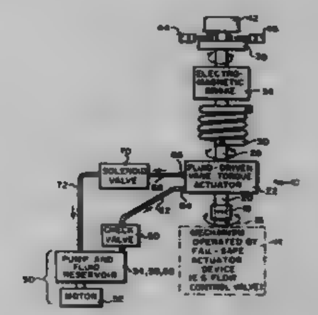
Tomohiko Kawanabe; Katsuhiko Kimura; Masahiko Asakura, and Takanori Shiina, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 24, 1986, Ser. No. 911,129
Claims priority, application Japan, Sep. 25, 1985, 60-213378
Int. Cl.⁴ F02M *25/06*
U.S. Cl. 60—274 **8 Claims**



1. A method of controlling exhaust gas recirculation in an internal combustion engine having an exhaust passage, an intake passage, an exhaust gas recirculating passage communicating said exhaust passage with said intake passage, an exhaust gas recirculating valve arranged across said exhaust gas recirculating passage for regulating an amount of exhaust gas recirculated from said exhaust gas passage to said intake passage, and a transmission having a shift lever, wherein the valve opening of said exhaust gas recirculating valve is controlled in response to operating conditions of said engine so as to regulate the amount of exhaust gas recirculation to values appropriate to the operating conditions of said engine, the method comprising the steps of (1) determining whether or not the engine is in at least one of a predetermined accelerating condition and a predetermined decelerating condition; (2) varying the valve opening of said exhaust gas recirculating valve by a predetermined value when the engine is determined to be in at least one of said predetermined accelerating condition and said predetermined decelerating condition; (3) detecting a position of said shift lever of said transmission; and (4) correcting said predetermined value in accordance with the detected position of said shift lever so as to increase the valve opening of said exhaust gas recirculating valve as said shift lever of said transmission is set to a higher speed position.

4,757,684
FAIL-SAFE ELECTRIC ACTUATOR

John J. Wright, 9 Hix Ave., Rye, N.Y. 10580
Filed Apr. 8, 1981, Ser. No. 252,022
Int. Cl.⁴ F15B *15/12*
U.S. Cl. 60—404 **10 Claims**


ELECTRO-MAGNETIC BRAKE
SOLENOID VALVE
FLUID-DRIVEN VANE TORQUE ACTUATOR
CHECK VALVE
PUMP AND FLUID RESERVOIR
MOTOR
MECHANISM OPERATED BY FAIL-SAFE ACTUATOR DEVICE IE & FLUID CONTROL VALVE
34,38,60
30
32
72

1. In combination with a control mechanism characterized by the ability to be moved from inoperative to operative position and back, a fail-safe actuator device for automatically returning the control mechanism to inoperative position when interruption of electric power occurs, which comprises:

a fluid-driven vaned torque actuator:

electric-motor-driven fluid power means for operating said torque actuator;

electrically operated valve means for controlling the power fluid flow between said torque actuator and said fluid power generating means;

at least one shaft projecting from said torque actuator;

coupling means for operatively connecting said shaft to the control mechanism to be operated by the failsafe actuator device;

reversible means for storing energy, said reversible means being operatively connected to said shaft;

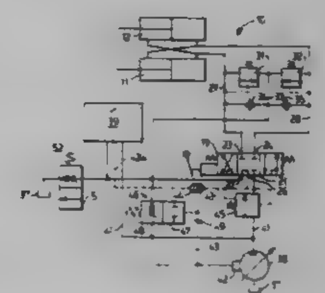
a limit-switch operating cam mounted on and rotatable with said shaft;

a limit switch positioned for activation by said limit-switch operating cam; and

electric circuitry means for interconnecting said motor-driven fluid power generating means, said valve means, and said limit switch, so that when electric power is applied to said circuitry means, said motor-driven fluid power generating means are energized and power fluid is delivered to said torque actuator, thereby rotating said torque actuator, said shaft, and the control mechanism to operative position, at the same time storing energy in said reversible energy-storage means: when said limit switch is activated said motor-driven fluid power means is deenergized and stopped, said valve means is closed to lock said torque actuator in place; and when electric power supply is interrupted, said valve means is deenergized and opened, permitting energy stored in said reversible means to return said shaft, thereby restoring the failsafe actuator device and the control mechanism to their initial inoperative position.

4,757,685
PRESSURE RESPONSIVE HYDRAULIC CONTROL CIRCUIT

Jerry J. Burckhartzmeyer, Peoria, Ill., assignor to Caterpillar Inc., Peoria, Ill.
Filed Aug. 24, 1987, Ser. No. 88,448
Int. Cl.⁴ F15B *13/04*
U.S. Cl. 60—452 **8 Claims**



1. A pressure responsive hydraulic control circuit for controlling a hydraulic motor comprising;

a directional control valve having an inlet port, an outlet port and a pair of motor ports, said control valve being movable between a neutral position at which the ports are all isolated from one another and an operating position at which the inlet port is in communication with one of the motor ports and the other motor port is in communication with the outlet port;

a source of variable pressure fluid;

a supply conduit connecting the source of variable pressure fluid to the inlet port;

a pair of motor conduits connecting the motor ports with the respective sides of the hydraulic motor;

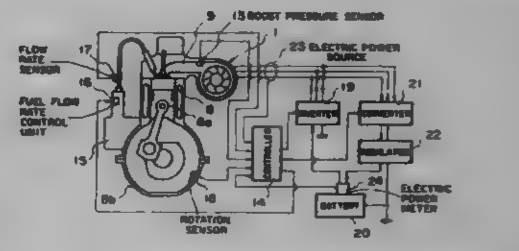
a pair of makeup valves connected to the respective motor conduits;

an exhaust conduit connected to the pair of makeup valves; [redacted]

means for communicating pressurized fluid from the supply conduit to the exhaust conduit and super-charging the makeup valves only when the directional control valve is in the neutral position.

[redacted]

Hideo Kawamura, Samukawa; Katsuyuki Tamai, Yokohama; Shigeki Saito, Katsuta, and Toshihiro Yamamoto, Hoya, all of Japan, assignors to Isuzu Motors Limited and Hitachi, Ltd., both of Tokyo, Japan
Filed Aug. 29, 1986, Ser. No. 901,622
Claims priority, application Japan, Aug. 30, 1985, 60-191224
Int. Cl.⁴ F02B *37/00*
U.S. Cl. 60—608 **3 Claims**



3. A control system for an internal combustion engine having a supercharger, comprising:

an internal combustion engine which emits exhaust gases;

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- a supercharger operable by the exhaust gases emitted from said internal combustion engine and having a rotary shaft;
- a motor/generator disposed on the rotary shaft of said supercharger, said motor/generator providing an output;
- electric power detecting means for detecting the output from said motor/generator and for generating an electric power output signal;
- fuel supply means for supplying fuel to said internal combustion engine;
- a flow rate sensor, coupled to said fuel supply means, for detecting the rate of fuel flow and for generating a flow rate signal indicative of the detected rate of fuel flow;
- a rotation sensor, coupled to said internal combustion engine, for detecting rotation of said internal combustion engine and for generating a rotation detection signal;
- means for determining whether said motor/generator should operate as a motor or a generator based on the flow rate signal and the rotation detection signal; and
- means for controlling the rate of fuel flow to the internal combustion engine based on the electric power output signal.

4,757,687
SYSTEM FOR CURRENT GENERATION

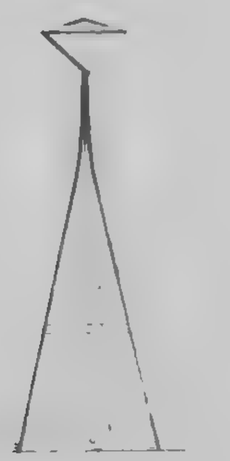
Gamal E. D. Nasser, Egenhofer Strasse 2, 8039 Puchheim, Fed. Rep. of Germany

Filed Jun. 2, 1987, Ser. No. 57,429

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1986, 3619269

Int. Cl.⁴ F01K *7/00*

U.S. Cl. 60—675 16 Claims



1. A system for generating electrical power from the evaporation and condensation of an energy carrier, said system including:

- a ring channel adapted to retain a volume of water therein;
- a volume of energy carrier fluid;
- a first heat exchanger in operative communication with the water in the ring channel and the energy carrier fluid, and adapted to transfer heat from the water to the energy carrier so as to provide an energy carrier vapor;
- a second heat exchanger in operative communication with a source of waste heat from a neighboring second power plant and with the energy carrier vapor, and adapted to transfer heat from the waste heat source to the vapor so as to superheat that vapor;
- a substantially conically tapering tower;
- a plurality of uptakes associated with a wall of the tower and adapted to collect said vapor and convey it to the top of the tower;
- condenser means disposed atop the tower and adapted to condense the vaporized energy carrier so as to provide a fluid;
- a fall down pipe disposed within the tower and having a first end in operative communication with the condenser so as to receive the fluid, said fall down pipe adapted to have the fluid fall to a second end thereof proximate the base of the tower and including a fluid turbine disposed so as to be turned by the falling fluid; and,
- an electrical generator of a first power plant in operative communication with the turbine.

4,757,688
SOLID-STATE ELECTROCALORIC COOLING SYSTEM AND METHOD

Al Basiulis, Redondo Beach, and Robert L. Berry, Rancho Palos Verdes, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Apr. 1, 1986, Ser. No. 846,764

Int. Cl.⁴ F25B *21/00*

U.S. Cl. 62—3 4 Claims

1. A cooling system for transferring heat, comprising:

- a first electrocaloric element selected from the group consisting of barium strontium titanate and cadmium lead niobate;
- a pair of electrodes disposed on opposite surfaces of said electrocaloric element;
- a first unidirectional heat pipe responsive to a heat source and thermally coupled to said electrocaloric element for conducting heat away from the heat source to said electrocaloric element when the heat source temperature exceeds the temperature of said electrocaloric element;
- a second unidirectional heat pipe thermally coupled to said electrocaloric element for transferring heat from said electrocaloric element when the temperature of said electrocaloric element exceeds a predetermined temperature;
- a second electrocaloric element selected from the group consisting of barium strontium titanate and cadmium lead niobate, said second electrocaloric element being thermally coupled to said second heat pipe;
- a second pair of electrodes disposed on opposite surfaces of said second electrocaloric element;
- a third unidirectional heat pipe thermally coupled to said second electrocaloric element for transferring heat from said second electrocaloric element when its temperature exceeds a predetermined temperature; and
- means for selectively applying voltages between electrodes of said electrode pairs for respectively generating electric fields in said first and second electrocaloric elements to heat said first and second electrocaloric elements in response to the presence of the electric fields and to cool said first and second electrocaloric elements upon removal of the electric fields, whereby said first and second electrocaloric elements functions as heat sinks to receive heat through said first and second heat pipes respectively when the temperatures of the heat source and said first electrocaloric element exceeds the temperature of said first and second electrocaloric elements, respectively.

4,757,689
CRYOPUMP, AND A METHOD FOR THE OPERATION THEREOF

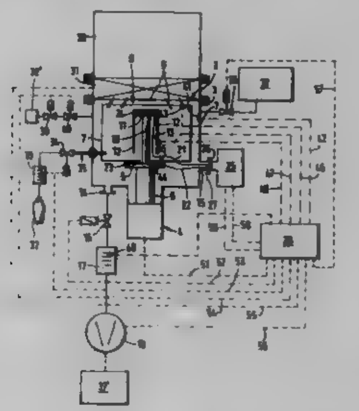
Werner Bächler, Rösrath; Hans-Joachim Forth, Cologne; Hans-Hermann Klein, Rösrath, and Wilhelm Strasser, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Leybold-Heraeus GmbH, Cologne, Fed. Rep. of Germany

Filed Oct. 22, 1986, Ser. No. 922,034

Claims priority, application European Pat. Off., Jun. 23, 1986, 86108529.8

Int. Cl.⁴ B01D *8/00*

U.S. Cl. 62—55.5 29 Claims



1. In a cryopump having a casing, a gas inlet to which a vacuum chamber can be connected through a first valve, a vacuum pump connected to said casing through a second valve, a two stage refrigerator as a cold source situated in said casing and having two refrigeration stages with pumping surfaces thereon, and electrical heating means associated with said pumping surfaces, the improvement comprising first sensor means, located in said casing, for producing a first signal responsive to the pressure within said casing and control means, connected to said first sensor means, for controlling the operation of the cryopump in response to said first signal.

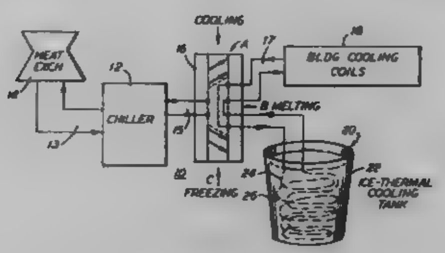
4,757,690
WATER FREEZING ENHANCEMENT FOR THERMAL STORAGE BRINE TUBE

Alex Holowczenko, Kirkville; Stephen A. Schoch, Clay, and Howard W. Sibley, Baldwinsville, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 19, 1987, Ser. No. 123,194

Int. Cl.⁴ F25D *3/00*

U.S. Cl. 62—59 14 Claims



1. In a brine tube of the type employed in an ice thermal storage tank in which a coil formed of said tube is immersed in water in the tank, and in which thermal energy is stored by passing cold brine through the tube to freeze the water to ice and the thermal energy is later recovered by passing warm brine through the tube to melt the ice; the improvement wherein a multitude of solid particles are partially embedded in the outer surface of the tube having a substantial portion thereof exposed to the water, the particles having a multifaceted crystal surface to which there are adsorbed microbubbles of air which serve as nucleation sites to facilitate the initial freezing of the water at within one degree F or less below the normal freezing point thereof.

4,757,691
COOLING PROCESS AND TUNNEL

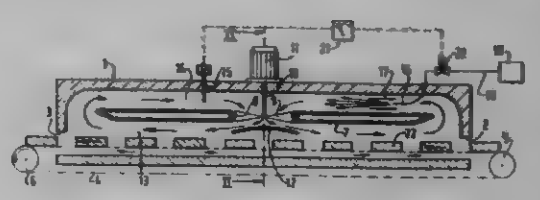
Jean Compagnon, Boulogne, France, assignor to Carboxyque Française, Paris, France

Filed Jun. 18, 1987, Ser. No. 63,461

Claims priority, application France, Jun. 18, 1986, 86 08774

Int. Cl.⁴ F25D *13/06*

U.S. Cl. 62—63 14 Claims



1. A process for cooling a product by injection of a cryogenic liquid into an elongated tunnel through which said product travels longitudinally, comprising dividing the tunnel into a first longitudinally-extending compartment and a second longitudinally-extending compartment which communicate with each other at opposite ends of the tunnel and at opposite ends of the compartments, and that communicate with each other at a place which is intermediate the length of the tunnel and intermediate the length of the compartments, conveying the product longitudinally through the first compartment, injecting the cryogenic liquid into the second compartment, and creating between the two compartments a forced circulation of gases resulting from a vaporization of the liquid by blowing said gases from the second compartment into the first compartment at said intermediate place.

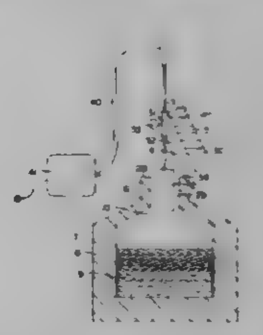
4,757,692
CRYOGENIC FREEZER

Gordon K. McDonald, 19790-80th Avenue, Langley, British Columbia, Canada V3A 6Y3

Filed Dec. 14, 1987, Ser. No. 132,461

Int. Cl.⁴ E24F *3/16*

U.S. Cl. 62—69 8 Claims



2. A method of freezing objects at a controlled rate comprising the steps of:

- (a) providing a tank of liquid nitrogen or similar cold liquid having a constricted neck;
- (b) providing a freezing chamber filled with a liquid having a low freezing point such as methyl hydrate;
- (c) placing the object to the frozen in said freezing chamber and regulating the height of said freezing chamber within the neck of said tank; and

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(d) bubbling gas from the bottom of the freezing chamber up through said liquid.

4,757,693

AIR CONDITIONING SYSTEM FOR A MOTOR VEHICLE

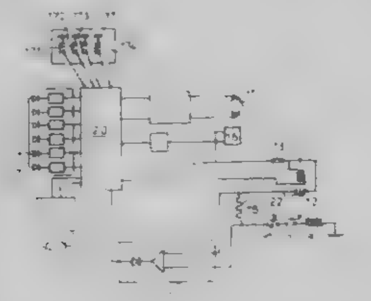
Philippe Charrier, Boulogne Billancourt, and Francois Bancon, Saint Germain en Laye, both of France, assignors to Regie Nationale des Usines Renault, Boulogne Billancourt, France

Filed Apr. 22, 1987, Ser. No. 41,285

Claims priority, application France, Apr. 22, 1986, 86 05778

Int. Cl.⁴ F25B *49/00*

U.S. Cl. 62—126 2 Claims



1. An air conditioner system for a vehicle, comprising:

a cooling circuit comprising a compressor having an electromagnetic clutch, a condenser, an excess pressure sensor, an underpressure sensor, a pressure reducer, and an evaporator having a thermostat;

an electrical circuit including, in series, a coil of said clutch, a contact of said excess pressure sensor, a contact of said underpressure sensor, a stop-start contact, said thermostat and means for monitoring the continuity of said electrical circuit;

an electric display component mounted on said vehicle; and

digital control means responsive to a detection of an interruption of said electrical circuit by said monitoring means for providing an interruption display signal to said display component, wherein said monitoring means comprise a shunt in said electrical circuit between said stop-start contact and one of said sensors, and a digital detection circuit means connected to the terminals of said shunt for outputting a signal to said control means.

4,757,694

ENERGY SAVING ACCESSORY FOR AIR CONDITIONING UNITS

Ruben Espinosa, 151 NW. 17 Pl., Rear, Miami, Fla. 33125

Filed Jun. 9, 1986, Ser. No. 871,938

Int. Cl.⁴ F25B *7/00*

U.S. Cl. 62—175 4 Claims

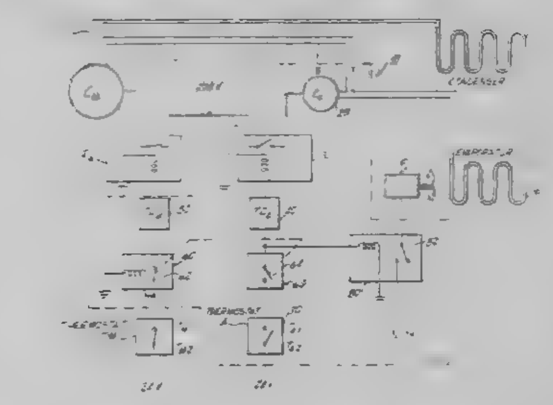
1. An accessory device to be used with electricity powered cooling systems having a first compressor means including first power relay means for interrupting the electrical power to said main compressor, condensor and evaporator assemblies, evaporator blower means, first thermostat means and a source for control voltage connected to said first thermostat means, comprising:

A. second compressor means of a capacity lower than the capacity of said first compressor means and having its high and low pressure ports piped in parallel to those of said first compressor;

B. second power relay means for interrupting the electric power supplied to said second compressor means and said second relay means including an energizing coil;

C. first time delay means having an input and an output and said output being connected to the coil of said first power relay means;

D. third relay means having an energizing coil and two switch means in tandem and each of said switch means having two connecting ends wherein one of said switch means is normally closed and the other switch means is normally open and normally open switch means having one of its connecting ends connected to said first thermostat means and said energizing coil of said third relay means being commonly connected to said one connecting end and to said first thermostat so that said normally open switch means closes when said first thermostat means senses a temperature higher than a first predetermined temperature and opens when a lower second predetermined temperature is sensed and the other connecting end of said normally open switch means being connected to the input of said first time delay means;



E. second thermostatic means including switch means having two connecting ends and one end being connected to said control voltage and the other end is connected to one end of said normally closed switch means so that when a third predetermined temperature is sensed by said second thermostatic means said switch means of said thermostatic means opens, and closes again when a fourth predetermined temperature is reached that is higher than said first predetermined temperature;

F. second time delay means having an input and an output and said output being connected to the energizing coil of said second power relay means and the input being connected to the other end of said normally closed switch means of said second relay means.

4,757,695

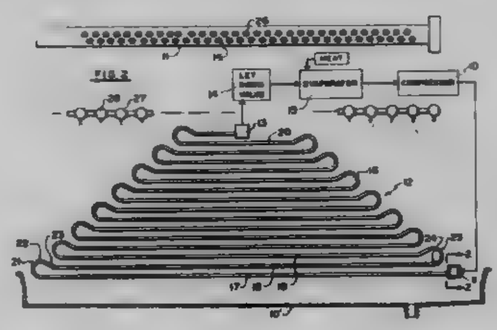
CONDENSER FOR REFRIGERATION APPARATUS

Dusan Malnar, 1404-7 Evergreen Pl., Winnepeg, Manitoba, Canada R3L 2T3

Filed Mar. 24, 1987, Ser. No. 29,643

Int. Cl.⁴ F28D *5/00*

U.S. Cl. 62—305 13 Claims



1. In a refrigeration apparatus comprising a circuit for a refrigerant fluid having an evaporator, a compressor for compressing the evaporated refrigerant fluid and a condenser for causing condensation of the compressed fluid, the condenser comprising a pipe having an inlet end and an outlet end, means on the inlet end for injecting fluid in gaseous phase under pressure into the pipe for condensation within the pipe to form a liquid phase, and means at the outlet end for receiving said condensed liquid phase, an outer surface of the pipe being arranged to engage a coolant fluid for cooling the outer surface and said fluid within the pipe, the pipe extending continuously from said inlet end to said outlet end and having a substantially constant cross-section area therealong and being shaped by bending to form a plurality of pipe portions each pipe portion lying in a substantially horizontal plane and a plurality of junction portions, each junction portion connecting a respective end of a respective one of the pipe portions to a next adjacent pipe portion, each of said junction portions defining a path which extends solely between said respective one of the pipe portions and said adjacent pipe portion and which includes a part thereof which extends to a height above both said respective one of said pipe portions and adjacent pipe portion so as to form a liquid trap.

4,757,696

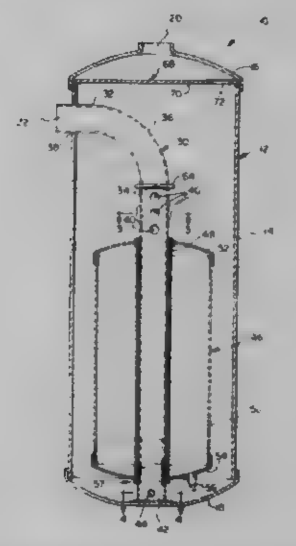
SUCTION ACCUMULATOR HAVING SLIDE VALVE

Edwin L. Gannaway, Adrian, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Jun. 17, 1987, Ser. No. 63,306

Int. Cl.⁴ F25B *43/00*

U.S. Cl. 62—503 19 Claims



1. A suction accumulator for a compressor of a refrigeration system, comprising:

a storage vessel having a vessel inlet and a vessel outlet, the vessel adapted for storing gaseous and liquid refrigerant introduced through the vessel inlet for drawing out through the vessel outlet, the volume of liquid refrigerant accumulated in the bottom of the vessel varying during operation of the refrigeration system;

a conduit, disposed within the vessel, having an end opening connected to the vessel outlet, a gas inlet opening means located toward the top of the vessel for communication with the gaseous refrigerant, and a liquid inlet opening means located toward the bottom of the vessel for communication with the liquid refrigerant; and

valve means, responsive to the accumulation of liquid in the vessel, for covering the gas inlet opening means.

4,757,697

MACHINE A TRICOTER

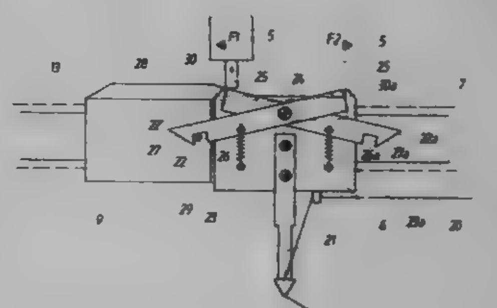
Marcello Buraggio, Ollon, and Michel Berger, Choex, both of Switzerland, assignors to Atelier de Construction Steiger S.A., Vionnaz, Switzerland

Filed May 20, 1987, Ser. No. 52,490

Claims priority, application European Pat. Off., May 22, 1986, 86200896.9

Int. Cl.⁴ D04B *15/52*

U.S. Cl. 66—128 3 Claims



1. A flat-bed knitting machine comprising at least one knitting head (2) including knitting needles, at least one camholder carriage (3) having several knitting systems traveling above the knitting head in order to drive the knitting needles, several striping bars (7) which are parallel to the knitting head and on each of which a thread guide (6, 6a) is mounted slideably between two stop blocks (9, 9a) having sloped inner end portions and likewise movable along the striping bar, the thread guides equipped with a thread catcher (21, 21a) being driven by fingers (25, 25a) fixed to the carriage and mounted elastically so that they can be moved away from the thread guides by means of sloped inner end portions of the stop blocks, a mechanism (22, 29) for attaching the thread guides automatically to the stop blocks, individual auxiliary drive means (11, 13) for the stop blocks (9, 9a), and control means (12) intended for these drive means and subject to the control means of the knitting machine, said knitting machine possessing means of detaching the thread guides automatically from the stop blocks at the moment preceding the driving of the thread guides, and the control means (12) of the drive means (11) for the stop blocks enabling the stop blocks to be moved, together with the thread guides, at any moment during the movement of the carriage.

4,757,698

DUST EXTRACTION DEVICE FOR FLAT KNITTING MACHINES

Herbert Seitz, Nuremberg; Eugen Frosch, Hilpoltstein; Ernst Goller, Reutlingen, and Jochen Dieringer, Hechingen, all of Fed. Rep. of Germany, assignors to H. Stoll GmbH & Co., Reutlingen, Fed. Rep. of Germany

Filed Aug. 7, 1987, Ser. No. 82,552

Claims priority, application Fed. Rep. of Germany, Aug. 7, [illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 66—168 9 Claims

1. A dust extraction device for flat knitting machines, with suction nozzles adjustably mounted on the cam carriage of the flat knitting machine and directed at the needle beds and which are connected with a suction fan driven by an electric motor and mounted on the cam carriage, characterised in that seperate and individually switchable and controllable suction fans

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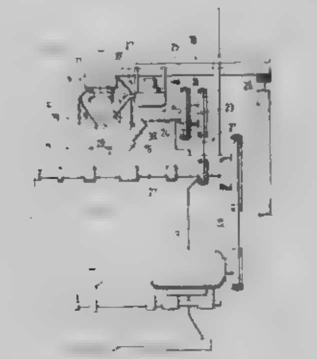
(27,27.1) are provided for the front and rear needle beds (11,12) and suction nozzles, which are connected with them, are low-



ered into the stitch-forming region (28) of the needle heads (39).

4,757,699
LAUNDRY WASHING AND DRYING MACHINE WITH IMPROVED HEATER

Luigi Arreghini, Venice, and Piero Durazzani, Pordenone, both of Italy, assignors to Industrie Zanussi S.p.A., Pordenone, Italy

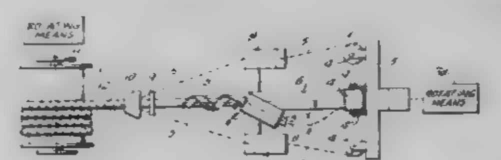
Filed Mar. 20, 1987, Ser. No. 28,684
Claims priority, application Italy, Apr. 9, 1986, 45718 A/86
Int. Cl.⁴ D06F *39/04*
U.S. Cl. 68—16 **6 Claims**

1. In a laundry washing and drying machine including a wash tub, a basket for receiving laundry and mounted for rotation within said wash tub, a recirculating duct extending from the bottom of said wash tub to an upper portion thereof, pump means for recirculating washing liquid through said duct from said bottom of said wash tub to said upper portion thereof, and electrical resistor heating means located externally of said wash tub for heating washing liquid prior to passage thereof to said upper portion of said wash tub, the improvement comprising:
a housing attached to the top of said wash tub and defining a chamber;
said duct extending into said housing such that washing liquid pumped by said pump means through said duct is discharged into said chamber;
means, positioned within said chamber and connected to the interior of said wash tub, defining a weir for the overflow of washing liquid collected in said chamber into said interior of said wash tub;
an air duct extending from said bottom of said wash tub to said chamber;
fan means for recirculating air from said wash tub, through said air duct, into said chamber, and then through said weir defining means into said wash tub, whereby laundry within said basket may be dried by the thus recirculated air; and
said heating means being located within said chamber and thereby heating both said washing liquid and the recirculated air prior to the passage thereof from said chamber into said wash tub.

4,757,700
PROCESS FOR FORMING FLEXIBLE TUBULAR BODIES WITH MULTIPLE HELICAL ELEMENTS

Enrico Dotti, Milan, and Angelo Sala, Merate, both of Italy, assignors to Societa' Cavi Pirelli S.p.A., Milan, Italy

Filed Feb. 10, 1986, Ser. No. 828,631
Claims priority, application Italy, Feb. 15, 1985, 19536 A/85
Int. Cl.⁴ B21D *11/06, 11/14, 31/00*
U.S. Cl. 72—66 **4 Claims**

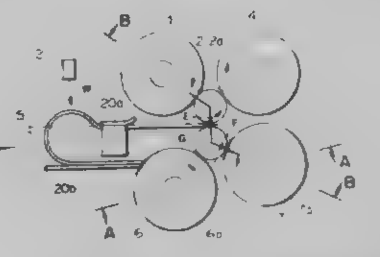


1. A process for making a flexible tubular body comprising a plurality of elongated, helicoidal, metal members placed side-by-side, said process comprising:
while advancing relatively long and narrow metal strips, for forming each of said members, in the direction of the lengths of the strips, twisting each of said strips around its longitudinal axis by an amount sufficient to form it into a helical configuration which it will retain after release;
after forming each of said strips into said helical configuration and while advancing each of said strips, bending each strip of helical configuration around the transverse axis of the cross-section of the strip which is both perpendicular to said longitudinal axis of the strip and is substantially parallel to the face of the strip which will constitute the inner surface of the tubular body by an amount which causes permanent bending deformation around said transverse axis
laying the so-shaped and bent strips in side-by-side relation to form said tubular body.

4,757,701
SIX STAGE ROLLING APPARATUS FOR FORMING ENDLESS METAL BELTS

Koichi Hamada, Tokyo, Japan, assignor to Ishibashi Iron Works, Co., Ltd., Ohsaka, Japan

Filed May 28, 1987, Ser. No. 55,467
Claims priority, application Japan, May 29, 1986, 61-124033
Int. Cl.⁴ B21B *5/00*
U.S. Cl. 72—110 **7 Claims**



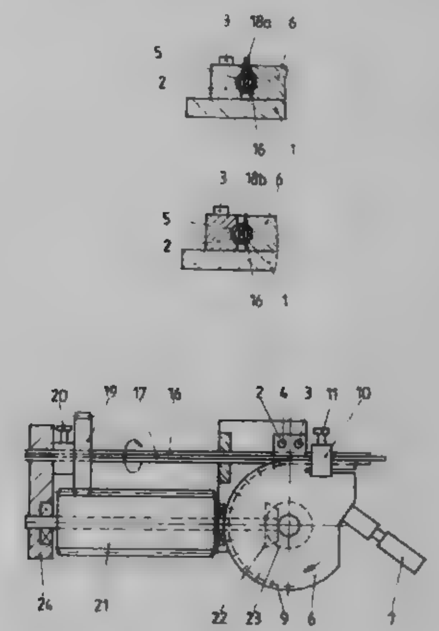
1. In a six stage rolling machine for rolling a tubular workpiece of a first internal diameter into a endless belt of a second internal diameter substantially greater than said first internal diameter, said machine including a pair of work rolls mounted

for movement about spaced parallel axes and for movement relative to each other between a retracted position radially spaced from each other and a rolling position wherein the wall of a tubular workpiece surrounding one of said work rolls is radially compressed between said work rolls, said one of said work rolls having an outer diameter less than said first internal diameter, back-up drive roll means associated with each of said work rolls operable to drive said work rolls in rotation to roll and circumferentially expand a workpiece compressed between said work rolls;
the improvement comprising feeder means for storing tubular workpieces to be rolled at a location at one side of said work rolls, delivery means for discharging endless belts rolled from the opposite side of said work rolls, transfer means mounted on said machine for movement along a path normal to the axes of said work rolls and extending between a first end limit and a second end limit, first means on said transfer means operable when said transfer means is at its first end limit to grip and remove a workpiece from said feeder means and operable when said transfer means is at said second end limit of movement to place the workpiece upon said one of said work rolls, and second means on said transfer means operable when said transfer means is at said first end limit for removing a rolled endless belt from said one of said work rolls and operable when said transfer means is at said second end limit for discharging a rolled endless belt onto said delivery means.

4,757,702
BENDING AND TWISTING APPARATUS AND METHOD FOR PRINTING MACHINE THREADING TUBE

Klaus Thalacker, Friedberg, and Michael Wörner, Neusaess, both of Fed. Rep. of Germany, assignors to M.A.N. Roland Druckmaschinen Aktiengesellschaft, Augsburg, Fed. Rep. of Germany

Filed Jul. 8, 1986, Ser. No. 883,129
Claims priority, application Fed. Rep. of Germany, Jul. 26, [illegible]
Int. Cl.⁴ B21D *7/04*
U.S. Cl. 72—152 **11 Claims**



1. The combination of a workpiece which consists of an elongated tubular structure formed with a longitudinal slit (17) to form a slit threading tube (16)
with
bending and twisting apparatus for selectively bending, twisting, and both bending and twisting said slit tube while maintaining the integrity of the slit (17),
and with
a strip-like filler element (18) located in, and extending transversely within the tube (16) and being formed with a ridge (18a, 18b) extending into the slit (17),
wherein the apparatus comprises
a base (1);
a bending disk or drum (6) rotatably secured to the base, and formed with an outer circumferential groove for receiving the tube, in a circumferential zone for bending the tube (16) about its circumference;
means (10, 11) for clamping a tube portion on a circumferential location of the drum (6) and for restraining twist of the tube with respect to the drum at said location;
counter bearing means (2, 3, 4) secured to the base for constraining the tube (16) to follow a circumferential zone of the drum upon rotation thereof including a fixed counter bearing element (2) formed with a groove (5) dimensioned and shaped to partly circumferentially receive the slit tube (16) and, in combination with said groove on the drum, guide said tube upon rotation of the drum during twisting of the tube;
twisting means (12, 13; 19, 20) clamped to the slit threading tube (16) at a longitudinal position thereon remote from said circumferential location for twisting the slit threading tube with the filler element therein about its longitudinal axis, and
wherein said filler element (18) is formed with a depressed portion (18b) dimensioned to fit across the interior of the tube and extending into the slit and not beyond the outer surface of said tube (16) in those regions where the slit tube (16) is to be twisted to, selectively, fit into the groove of the drum or of the counter bearing element;
said filler element (18) being further formed with at least one portion (18a) adjacent the depressed portion dimensioned to project outside of said slit (17) in those regions where the tube will not be twisted;
said depressed portion (18b) of the filler element (18) permitting twisting of said tube while the tube is partly received in said groove (5) of said counter bearing element (2);
said filler element (18) being bent, or twisted, or bent and twisted with the tube (16) upon bending, or twisting, or bending and twisting of the tube and preventing deformation of said slit (17).

11. A method of bending and twisting a workpiece which consists of an elongated tubular structure formed with a longitudinal slit (17) to form a slit threading tube,
utilizing an apparatus having a base (1);
a bending disk or drum (6) rotatably secured to the base and formed with a circumferential zone for bending the tube (16) about its circumference;
means (10, 11) for clamping a tube portion on a circumferential location of the drum at said zone and for restraining twist of the tube with respect to the drum at said location;
a counter bearing element (2, 3, 4) secured to the base for constraining the tube (16) to follow said circumferential zone of the drum upon rotation thereof; and
twisting means (12, 13; 19, 20) clamped to the slit threading tube (16) at a longitudinal position thereon remote from said circumferential location,
comprising the steps of
backing a portion of the circumference of said tube by a groove formed in said bending disk or drum, and a counter groove (5) formed in the counter bearing element (2);
introducing into the slit tube a strip-like filler element (18) formed with a depressed portion (18b) dimensioned to fit across the interior of the tube and extending into the slit, but not beyond said slit, in those regions where the slit

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tube (16) is to be twisted, said filler element further being formed with a portion (18a) adjacent said depressed portion and dimensioned to project outside of the slit in those regions where the tube is not to be twisted;

said step of introducing said filler element further comprising introducing said filler element into the tube with the depressed portion positioned in the region where the tube, upon being bent about the circumference of said bending disk or drum, moves relative to said counter bearing element (2) and additionally twists with the tube surface adjacent said slit fitting into at least one of said grooves without interference from said filler element maintaining the integrity of said slit; and

bending and twisting said tube by conjointly operating said bending disk or drum and said twisting means, with the filler element in said tube, and maintaining the integrity of said slit by the presence of the filler element in said slit (17) as the tube is being bent and twisted so that, upon bending and twisting, the depressed portion (18b) moves past an adjacent surface of the drum, or counter bearing element, respectively, and thereby preventing mutual interference.

4,757,703

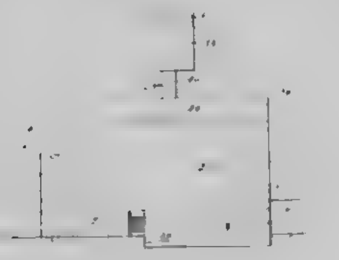
DIE APPARATUS FOR HANDLING TUBING HAVING A RADIALLY PROJECTING ANNULAR FLANGE

Robert J. Redman, Indian River, Mich., assignor to Tube Fab of Afton Corporation, Afton, Mich.

Filed Jan. 27, 1987, Ser. No. 6,809

Int. Cl.⁴ B21D *41/02, 22/00*

U.S. Cl. 72—357 **2 Claims**



1. In a die apparatus including separable die members operable in a die closed position to define an elongate cavity extending entirely through said die members from end to end, said cavity having a uniform first diameter over a major portion of its length and at least one coaxial enlarged diameter section intermediate the ends of said cavity whereby said cavity is conformed to tightly clamp an elongate length of tubing having a flange-like annular upset thereon, when said die members are in the closed position, and means for feeding tubing axially along a fixed path through said die members when said die members are separated from each other in a die open position;

the improvement wherein said die apparatus comprises a pair of die members mounted for traverse horizontally coordinated movement toward and away from each other between a traversely spaced open position and a first die closed position, each of said pair of die members having first and second die parts mounted for longitudinal horizontally coordinated movement toward and away from each other between a longitudinally spaced open position and a second die closed position, said first and second die parts having opposed die faces at inner sides lying in parallel vertical general planes traverse to said fixed path, guide pin and spring means engaged between said first and second die parts resiliently guiding and biasing said first and second die parts to the longitudinally spaced open position, wherein said first die parts are retracted longitudinally along said fixed path from said second die parts, said pair of die members having opposed die faces at inner sides lying in longitudinally parallel vertical general planes with respect to said fixed path and horizontally extending tube receiving recesses extending across said die faces cooperable to fixedly clamp a continuous length of tubing between said first and second parts of said pair of die members when said pair of die members are in the first die closed position, spring means engaged between said pair of die members resiliently biasing said pair of die members to the traversely spaced open position wherein said die faces are retracted at equal distances traversely from said fixed path exceeding the radial outward projection of said annular upset, means for advancing said continuous length of tubing, by a predetermined length, axially along said fixed path through said die members wherein a new length of tubing is positioned between said pair of die members, first power actuated means for driving said pair of die members simultaneously from the traversely spaced open position to the first die closed position, and second power actuated means for driving said first die parts simultaneously from the longitudinally spaced open position to the second die closed position to form the annular upset at a selected point along the longitudinal length of said tubing between said first and second die parts of said pair of die members.

4,757,704

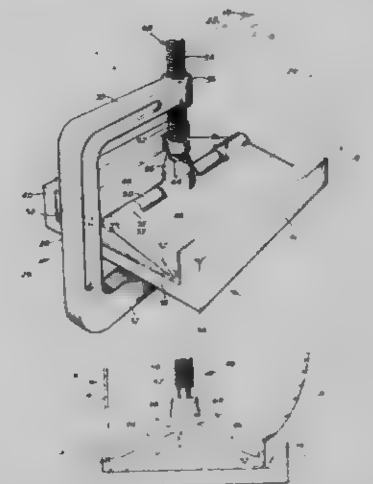
GUTTER INWEDGE

Joseph J. Dresbach, 2479 Nicholson Rd., Sewickley, Pa. 15143

Filed Apr. 10, 1986, Ser. No. 850,289

Int. Cl.⁴ B21D *3/14*

U.S. Cl. 72—393 **16 Claims**



12. A method for expanding the width of an end portion of a gutter section comprising the steps of,

positioning the end portion of a gutter section in a channel-shaped die having a preselected width greater than the width between opposite walls of the gutter section,

positioning a pivotal pressure applicator within the gutter section,

applying a downward force upon the pressure applicator to downwardly move the pressure applicator within the gutter section toward the walls thereof,

pivoting portions of the pressure applicator outwardly toward both walls of the gutter section upon continued downward movement of the pressure applicator,

increasing the angle between the pivoting portions of the pressure applicator to apply pressure outwardly along a selective length of the gutter walls through the pressure applicator, and

simultaneously expanding the walls of the gutter section outwardly upon continued outward pivotal movement of the pressure applicator until the gutter section walls are restrained by contact with the channel-shaped die.

4,757,705

PLATE PROCESSING DEVICE HAVING GUIDE MEANS FOR A VERTICAL RAM

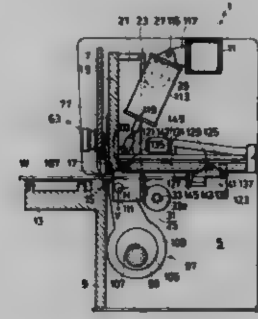
[illegible] Arima, Isehara; Hidekatsu Ikeda, Hatano; [illegible] Kunihiro, and Chuo Tobita, both of Isehara, all of Japan, assignors to Amada Company, Limited, Japan

Filed May 7, 1986, Ser. No. 860,467

Claims priority, application Japan, May 8, 1985, 60-[illegible][U]; Jun. 3, 1985, 60-82468[U]; Jun. 3, 1985, 60-118092; Jun. 3, 1985, 60-82469

Int. Cl.⁴ B21J *13/04*

U.S. Cl. 72—456 **3 Claims**



1. A plate processing device for use in a machine having a vertically acting ram, said ram having first and second longitudinally extending vertical surfaces disposed on opposite sides thereof, comprising:

a frame;

a first blade mounted on said frame;

a second blade mounted on said first vertical surface of said [illegible]

means mounted on said frame for supporting said ram for free vertical movement on the frame so as to bring said blades together for plate processing action; means connected to said second vertical surface of said ram and mounted on said frame for adjusting a horizontal clearance between the first and second blade;

a guide device mounted on the frame for guiding the ram and applying a bias against said first vertical surface of said ram for maintaining the horizontal clearance formed between said first blade and said second blade, said guide device including;

(i) pressure activated means adjustably mounted on the frame, positioned with respect to the frame in a direction perpendicular to said vertical surfaces of the ram;

(ii) a guide member for biasing said first surface of the ram in a direction perpendicular thereto, through more than two points which do not lie on a line;

(iii) means for engaging the guide member with the pressure activated means in such a manner that the guide member can rotate about a first axis and a second axis, said axes lying a plane and being substantially parallel to said vertical surfaces of the ram and said axes being perpendicular to each other; whereby the clearance between the first blade and the second blade is reliably [illegible]

4,757,706

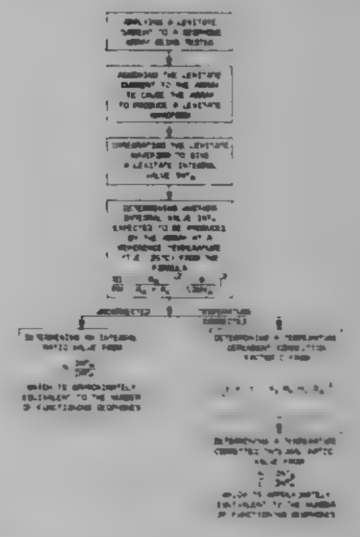
GEOPHONE TESTING

William N. Doggett, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 31, 1987, Ser. No. 33,297

Int. Cl.⁴ G01D *18/00*

U.S. Cl. 73—1 DV **15 Claims**



1. A method for testing at least one moving-coil geophone of the type which includes a movable coil which is displaceable from an original position so as to move through a magnetic field to thereby produce electrical energy, comprising:

applying an electrical levitate current to said at least one geophone to cause displacement of said coil from its original position;

removing said current to cause said coil to return to its original position, said at least one geophone in response thereto producing an output signal having associated therewith a levitate waveform which is characterized by voltage as a function of time;

integrating said levitate waveform by integrating voltage with respect to time to give a levitate integral value INT_a which is indicative of the operability of said at least one geophone.

4,757,707

MOLTEN METAL GAS ANALYSIS

David S. Harvey, Rotherham, and David T. Wilson, Worrall, both of England, assignors to British Steel Corporation, En[illegible]

Filed Mar. 17, 1987, Ser. No. 26,692

Claims priority, application United Kingdom, Mar. 19, 1986, [illegible]

Int. Cl.⁴ G01N *27/18*

U.S. Cl. 73—19 **11 Claims**

1. Apparatus for determining the concentration of a selected gas in molten metal of known temperature and composition, other than dissolved gases, comprising a tubular probe having an outer sheath, impermeable to the metal, constructed from a gas permeable cermet for immersion in the melt, gas conducting means for passing a gas of known composition within the probe such as to realise an equilibrium condition, via the

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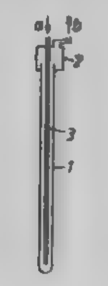
sheath, with the gas dissolved in the melt and an analyser for analysing the equilibrated gas collected from the probe



whereby to determine the concentration of the selected gas in said melt.

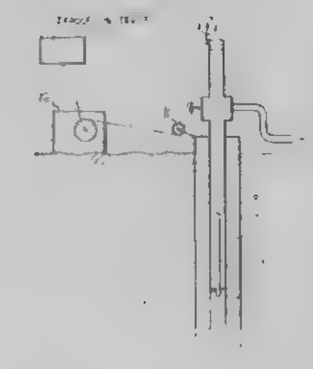
4,757,708
THROUGH HOLE CONSTRUCTION FOR PROCESS MEASURING DEVICES

Matti Hietaranta, Nattari, Finland, assignor to Valmet OY, Tampere, Finland
Filed Mar. 17, 1987, Ser. No. 26,505
Claims priority, application Finland, Mar. 18, 1986, 861117
Int. Cl.⁴ G01N *11/10*
U.S. Cl. 73—59 15 Claims

1. A through hole construction in a measuring device (2) which includes a sensing element (4) communicating with a process substance (3) and being subject to a force generated by the process substance, and a device portion (5) outside the process substance, said portion being bounded by a boundary surface of the process substance, a lever-like transfer element (7) connected with the sensing element (4) and led from the process substance to the portion (5) outside the process substance via a through hole (8) located at the boundary surface of the process substance and having a side region consisting of an area around the cavity of said hole, the transfer element being supported by the measuring device by fixing means, such as bearings (1), creating a fulcrum for said transfer element and arranged to transfer the force acting on the sensing element due to the process substance, to a measuring element (6) in the portion outside the process substance using the torque applied by the sending element (4) to the transfer element (7) about the fulcrum defined by said fixing means, said through hole (8) comprising a sealing member for separating the portion outside the process substance from the process substance, said sealing member being a diaphragm (14) of elastic material in an engagement with said transfer element (7) and covering said through hole in a position substantially perpendicular to the longitudinal axis of the transfer element and being in engagement with the measuring device at two regions, the first region engagement with the measuring device being the side region of the through hole at the outer periphery of the diaphragm and the second region of engagement with the measuring device being the transfer element located at the central portion of the diaphragm, at least one of the said regions of engagement allowing the diaphragm and the region of engagement to move relative to each other substantially in the direction of the main plane of the diaphragm in order to eliminate the forces causing measurement inaccuracy, such as tension forces applied to the diaphragm by translation and rotation of the transfer element relative to said through hole.

4,757,709
FLOWMETER FOR USE IN A HYDROCARBON WELL

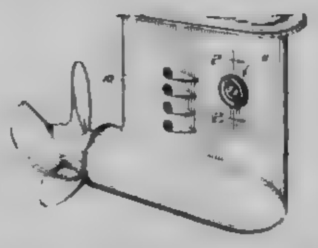
Jean A. Czernichow, Chatenay, France, assignor to Schlumberger Technology Corporation, Houston, Tex.
Filed Feb. 20, 1987, Ser. No. 17,379
Int. Cl.⁴ E21B *47/10*
U.S. Cl. 73—155 7 Claims



1. A device for measuring the flow rate of a fluid stream in a hydrocarbon well, comprising:
a central mandrel adapted to be suspended from a cable in the well,
means for centering the mandrel in the fluid stream to define an annular flow passage,
fluid stream contracting means for creating a restriction in said annular flow passage,
a differential pressure gauge located in the mandrel and responsive to the pressure head loss resulting from said restriction, for generating a signal indicative of the flow rate of the fluid stream.

4,757,710
SIGHT GLASS FOR OBSERVING LUBRICANT IN THE LOWER GEARCASE OF MARINE ENGINES

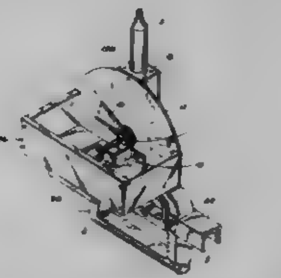
James B. Haynes, 5 Ridge Dr., Naples, Fla. 33963
Filed Jan. 15, 1988, Ser. No. 144,329
Int. Cl.⁴ G01F *23/02*
U.S. Cl. 73—334 4 Claims



1. A sight glass assembly adapted to be bonded into a circular hole in the lower gearcase of a marine engine comprising
a window ring which is threadedly inserted into and bonded to the circular hole in the gearcase, said ring having an axially concentric groove,
an O-ring of resilient waterproof material fitted into the annular groove in the window retaining ring,
a disc-shaped transparent sight glass having a first one of two outer edges being pressed against the O-ring, and
a ring-shaped window cover having a flat annular face firmly pressed against the second outer edge of the sight glass and threadedly joined to the window retaining ring.

4,757,711
[illegible] HAND-DYNAMOGRAPHIC TRANSDUCER

Yoshiaki Omura, Apt. 8-I, Riverside Dr., New York, N.Y. 10023
Continuation of Ser. No. 692,855, Jan. 16, 1985, abandoned, which is a continuation of Ser. No. 614,397, May 25, 1984, abandoned, which is a continuation of Ser. No. 429,342, Sep. 30, 1982, abandoned. This application Jul. 24, 1986, Ser. No. [illegible]
Int. Cl.⁴ A61B *5/22*; H01C *10/10*
U.S. Cl. 73—379 11 Claims

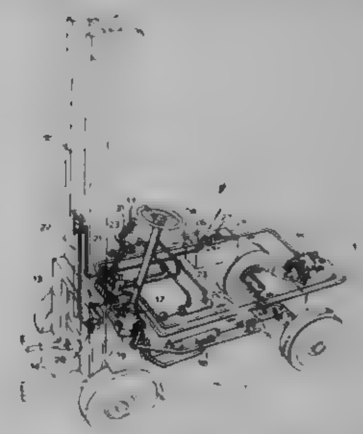


1. A dynamometer, comprising a first member, a second member which is mechanically movable relative to the first member along a predetermined path, means for resisting movement of the second member with respect to said first member in one direction along said predetermined path with a force which increases with the distance moved in said one direction, and a multiturn rotary potentiometer to provide resolution and having an axis, a resistor element and a wiper element which is in sliding electrical contact with the resistor element and is rotatable with respect thereto establishing an electrical resistance between the wiper element and one end of the resistor element which increases with relative rotation of said elements in one sense, one of said resistor and wiper elements being fixedly mounted on said first member, and the dynamometer further comprising means coupling the other of said resistor and wiper elements to said second member to provide direct electrical measurement of the mechanical movement of said second member by means of said electrical resistance so that movement of said second member in said one direction along said predetermined path is accompanied by relative rotation of said elements in said one sense, said coupling means including a shaft having an axis and being rotatable thereabout, the axis of said shaft being coaxially aligned with the axis of said potentiometer, one end of said shaft being pivotally connected to said potentiometer and another end of said shaft being pivotally interconnected to said second member and an L-shaped bracket connected to said potentiometer wherein said shaft and said bracket ensure an accurate measurement of the movement of said second member.

4,757,712
ELECTRIC MONITORING SYSTEM FOR LOAD HANDLING VEHICLES

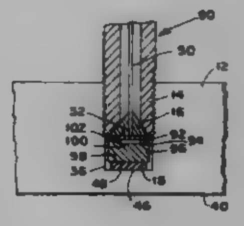
Zeljko T. Jurca, Etobicoke, Canada, assignor to Alert-O-Brake Systems, Inc., Mississauga, Canada
Filed Jun. 1, 1987, Ser. No. 55,899
Int. Cl.⁴ G04F *10/00*
U.S. Cl. 73—432.1 15 Claims

1. An electric monitoring system for use in association with a load handling vehicle to record the pattern of vehicle usage, comprising
supply circuit means including an on-off switch operable to activate the system;
timer means coupled to said supply circuit means and responsive thereto in accordance with the operation of said switch for timing the activation of the system;
first transducer means for detecting the presence of a load applied to the vehicle;
second transducer means for detecting vehicle motion;
a plurality of timer circuits each including a respective timer;
first selective switching means comprising a single-pole, double-throw switch responsive to said first transducer means and operable thereby in accordance with the presence of a vehicle load, and
second selective switching means comprising a pair of single-pole, double-throw switches responsive to said second transducer means and operable thereby in accordance with the detection of vehicle motion, said second selective switching means selectively interconnecting the timer circuits in pairs with the first selective switching means for selectively activating said timers in accordance with the respective conditions of said first and said second selective switching means.



4,757,713
ULTRASONIC TRANSDUCER

Dov Hazony, University Heights, and Richard E. Berris, Jr., Chagrin Falls, both of Ohio, assignors to J. W. Harley, Inc., Twinsburg, Ohio
Continuation-in-part of Ser. No. 702,926, Feb. 19, 1985, Pat. No. 4,649,749. This application Mar. 16, 1987, Ser. No. 25,943
Int. Cl.⁴ G01N *29/00*
U.S. Cl. 73—597 9 Claims



1. An ultrasonic transducer device for measuring the thickness of a member comprising a piezoelectric element, means for biasing said piezoelectric element against a surface of the member whose thickness is to be measured, and a thickness reference member interposed between said biasing means and said piezoelectric element, said thickness reference member operatively contacting said piezoelectric element and applying a substantially uniform force thereto, said piezoelectric element having a pair of faces, one of said pair of faces being in

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direct contact with a surface of the member whose thickness is to be measured and the other of said pair of faces being compressed by said thickness reference member.

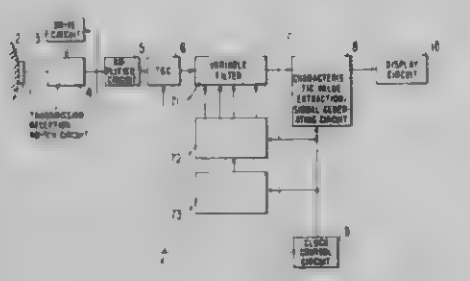
4,757,714
SPEED SENSOR AND HEAD-MOUNTED DATA DISPLAY

Peter K. Purdy, and Kirk W. Beach, both of Seattle, Wash., assignors to Insight, Inc., Kirkland, Wash.
Continuation-in-part of Ser. No. 911,573, Sep. 25, 1986. This application Apr. 10, 1987, Ser. No. 36,826
Int. Cl.⁴ G01H *5/00*
U.S. Cl. 73—597 18 Claims

1. A speedometer for a self-propelled sportsman moving by his or her own force or momentum along a stationary medium comprising means mounted for movement with the sportsman for transmitting waves toward the stationary medium and for detecting such waves reflected from the stationary medium, means mounted for movement with the sportsman for measuring the difference in frequency between the transmitted and reflected waves in accordance with the Doppler effect, means mounted for movement with the sportsman for calculating the speed of the sportsman from such frequency difference, and means mounted for movement with the sportsman for indicating such speed.

4,757,715
APPARATUS FOR CHARACTERIZING ULTRASONIC MEDIUM

Hirohide Miwa; Keiichi Murakami, both of Kawasaki; Takaki Shimura, Machida; Yutaka Igarashi, Yokohama; Akira Shiba, Kawasaki, and Hajime Hayashi, Yamato, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Continuation of Ser. No. 768,120, Aug. 13, 1985, abandoned. This application Feb. 17, 1987, Ser. No. 16,472
Claims priority, application Japan, Dec. 14, 1983, 58-235852
Int. Cl.⁴ G01N *29/00*
U.S. Cl. 73—602 5 Claims

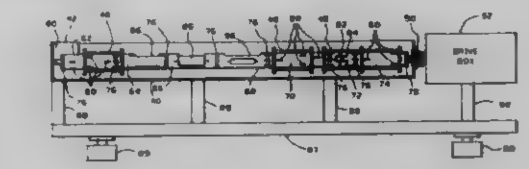


1. An apparatus for measuring characteristic values of a medium to be measured which quantitively measures characteristic values of the medium by sending an ultrasonic pulse into the medium, receiving reflected signals, having gain and frequency characteristics, reflected from respective depths of said medium as a function of time, and processing the received signals, said apparatus comprising:

- storing means for storing, as a function of time corresponding to depth, spectrum correction information for continuously correcting changes of a spectrum shape of the entire received reflected signal by changing the frequency characteristics of the received reflected signal, and changes of intensity of the received reflected signal by changing the gain characteristics of the entire received reflected signal, said changes to the spectrum and intensity resulting from a three dimensional change of convergence and diffraction of an ultrasonic beam as a function of depth, obtained by utilizing the spectrum of reflected reference signals reflected from reference reflectors placed at respective depths of a medium which shows attenuation small enough to be neglected; and
- correcting means for correcting, in a time domain, in accordance with the respective spectrum correction information sequentially read from said storing means, the shape of the spectrum of the reflected signal, received as a function of time, from said medium to be measured, said correcting means including a correcting amplifier which receives the received reflected signal and has a variable gain characteristic, and a correcting filter having a variable frequency characteristic, the variable gain characteristic and the variable frequency characteristic being controlled by the respective spectrum correction information from said storing means.

4,757,716
BORESONIC INSPECTION SYSTEM

Lawrence D. Nottingham, Charlotte, N.C.; Thomas E. Michaels, and Jennifer E. Michaels, both of Freeville, N.Y., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Continuation of Ser. No. 879,015, Jun. 26, 1986, abandoned. This application Nov. 6, 1987, Ser. No. 117,918
Int. Cl.⁴ G01N *29/04*
U.S. Cl. 73—623 28 Claims



21. An inspection transducer station including an inspection transducer plate, said inspection transducer station comprising:

- rotation means for rotating the inspection transducer plate circumferentially;
- first radial motion means coupled to one end of said rotation means for providing a first radial motion to the one end; and
- second radial motion means coupled to the other end of said rotation means for providing a second radial motion to the other end.

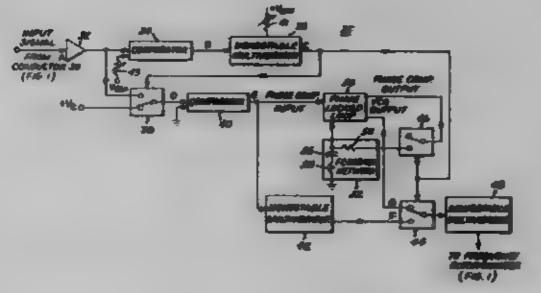
4,757,717
APPARATUS AND METHOD FOR MEASURING VIBRATION OF A ROTATING MEMBER

John F. Wolfinger; Abraham S. Asan, both of Schenectady, N.Y., and John M. Reschovsky, Framingham, Mass., assignors to General Electric Company, Schenectady, N.Y.
Filed Nov. 25, 1986, Ser. No. 934,767
Int. Cl.⁴ G01H *11/02*
U.S. Cl. 73—660 10 Claims

1. Apparatus for determining vibration of a rotatable member comprising:

- conducting means for responding to magnetic influence, partially circumferentially surrounding said member;

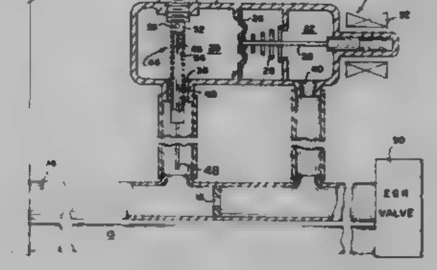
- magnetic means coupled to said rotatable member for inducing an electrical voltage signal in said conducting means when said rotatable member is rotated and said magnetic means is operationally disposed within a first predetermined distance from said conducting means and further for producing a null signal in said conducting means when said magnetic means is operationally disposed within a second predetermined distance from said conductor, the second predetermined distance being greater than the first predetermined distance, the electrical voltage signal and the null signal each occuring at least once during a complete revolution of said rotatable member;



- demodulating means coupled to said conducting means, said demodulating means including signal synthesizing means for generating, during the interval of the null signal, a synthesis signal indicative of the electrical voltage signal, wherein the frequency of the electrical voltage signal and the frequency of the synthesis signal are each indicative of the vibration of said rotatable member; and
- processing means coupled to said demodulating means for obtaining information indicative of vibration of the member from the electrical voltage signal and the synthesis signal.

4,757,718
DE-ICER FOR A TRANSDUCER ASSEMBLY

Clarence D. Fox, Decatur, Ill., assignor to Borg-Warner Automotive, Inc., Troy, Mich.
Filed Mar. 23, 1987, Ser. No. 29,503
Int. Cl.⁴ G01L *7/00*
U.S. Cl. 73—714 25 Claims

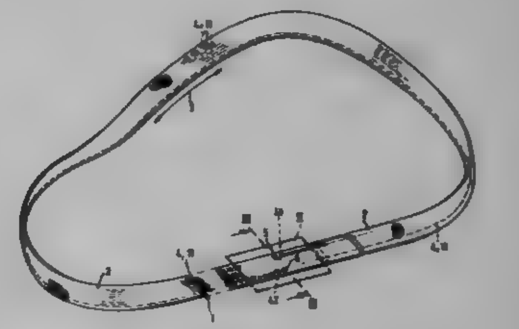


7. A transducer assembly positioned in combination with an internal combustion engine having an exhaust passage, said transducer assembly comprising:

- a housing constructed and arranged with suitable passageways permitting engine exhaust gases to pass from said exhaust passage to a chamber in said housing, said passageways being subject to the formation of ice blockage therein; and
- operative means disposed in at least one of said passageways for maintaining that passageway free of complete ice blockage regardless of the location of said housing relative to said exhaust passage.

4,757,719
ROUND LOAD LIFTING SLING

Heinz Franke, Übach-Palenberg, Fed. Rep. of Germany, assignor to Spanset Inter AG, Zürich, Switzerland
Filed May 15, 1987, Ser. No. 50,021
Claims priority, application Fed. Rep. of Germany, May 15, 1986, [illegible]
Int. Cl.⁴ G01B *21/00*
U.S. Cl. 73—760 11 Claims

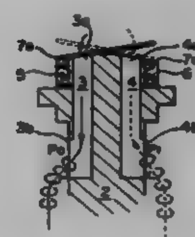


1. Round load lifting sling, comprising:

- a load bearing core including an endless skein of synthetic multi-filament threads;
- an annular textile protective tube having a wall surrounding said skein; and
- a testing conductor for conducting a testing medium, carried by, and having same length as, said endless skein, said testing conductor
  - being carried by said endless skein along the entire length of said skein,
  - having a longitudinal expandability at least as large as the longitudinal expandability of said threads, and
  - having connecting ends at opposite ends thereof penetrating said wall of said tube so as to be connectable to a source of the testing medium.

4,757,720
KARMAN VORTEX FLOWMETER

Akira Tanaka, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 17, 1987, Ser. No. 40,555
Claims priority, application Japan, Apr. 18, 1986, [illegible]
Int. Cl.⁴ G01F *1/32*
U.S. Cl. 73—861.24 10 Claims



1. A Karman vortex flowmeter for producing a Karman vortex street corresponding to the velocity of a fluid on the downstream side of a column inserted in the fluid to produce the vortex street and for measuring the flow rate of the fluid by making use of the variations in the pressure caused by the production of the Karman vortex street, said flowmeter com-

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prising: a metal sheet member consisting of a magnetic substance and containing a vibrating plate portion which vibrates in response to the variations in the pressure, the sheet member having first and second magnetic circuit-forming portions to produce a magnetic circuit whose magnetic flux reverses in direction whenever the direction of the vibration of the vibrating plate portion is reversed; pressure transfer means for transmitting the variations in the pressure in the column to the vibrating plate portion; magnets disposed to magnetize the vibrating plate portion to different polarities according to the direction of the vibration of the vibrating plate portion; and a detecting means for detecting the inversion of the direction of the magnetic flux caused by the formation of the magnetic circuit to determine the flow rate of the fluid.

4,757,721

[redacted]

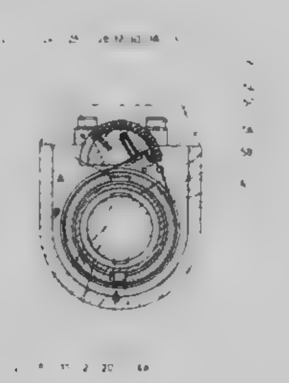
Ronald F. Horner, and David O. Crane, both of Warwickshire, United Kingdom, assignors to Crane Electronics Limited, [redacted]

Filed Dec. 4, 1986, Ser. No. 937,981

Claims priority, application United Kingdom, Dec. 17, 1985, [redacted]

Int. Cl.⁴ G01L *3/10;* H01R *39/18*

U.S. Cl. 73—862.35 11 Claims



1. A torque transducer comprising:
a torque deformable shaft,
strain sensing means mounted on said shaft for generating a torque related electrical signal;
slip ring means mounted for conjoint rotation with said shaft for receiving said torque related signal; and
brush means electrically contacting said slip ring means for transmitting the torque related signal to an associated electrical circuit means, said brush means including:
  a first brush member comprising a flexible strip of carbon material laminated to a flexible backing strip; and
  biasing means for tensioning said first brush member to draw said carbon material against the periphery of said slip ring means.

4,757,722

MOTION CONVERSION APPARATUS

Marvin J. Glover, 560 N St. SW. #N-111, Washington, D.C. 20024

Filed Oct. 27, 1986, Ser. No. 923,618

Int. Cl.⁴ F16H *33/10, 37/00*

U.S. Cl. 74—86 4 Claims

1. A mechanism for transforming continuous unidirectional rotating and reciprocating motions into a plurality of arcuate motions intersecting each other along defined paths at preselected angles, comprising:
a continuously unidirectional rotating drive apparatus;
linkage means, rotated and reciprocated by the drive apparatus in response to rotation of said drive apparatus, for transmitting torque, said linkage means being attached at one end to said drive apparatus;
rotating body means, fixed to an opposite end of the linkage means, for receiving torque transmitted by the linkage means, said body means having a center of rotation;
means for defining a path within which the drive apparatus rotates, said path-defining means lying in a circular plane having a diameter with a center point; and
means for supporting the rotating body means so that the center of rotation of said rotating body means is located on an imaginary line perpendicular to the circular plane of the path-defining means through the center point of the diameter.

4,757,723

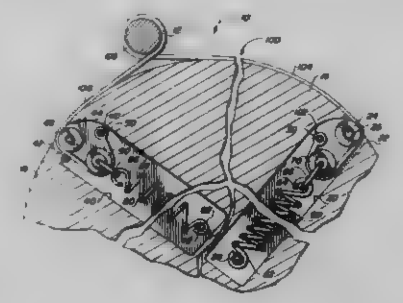
[redacted]

Donald G. Carson, 12108 Towner Ave., NE., Albuquerque, N. Mex. 87112

Filed Feb. 6, 1987, Ser. No. 11,686

Int. Cl.⁴ F16H *27/02, 29/02*

U.S. Cl. 74—89.2 8 Claims



1. Rotary drive apparatus, comprising, in combination:
first rotatable member means;
second rotatable member means having a first bore and a second bore;
cable means coupling the first and second rotatable members together for joint rotation, including a first end disposed in the first bore and a second end disposed in the second bore; and
spring means connected to the first and second ends for preloading the cable means and for fully retracting the cable means into the first and second bores in the event of a break in the cable means.

4,757,724

[redacted]

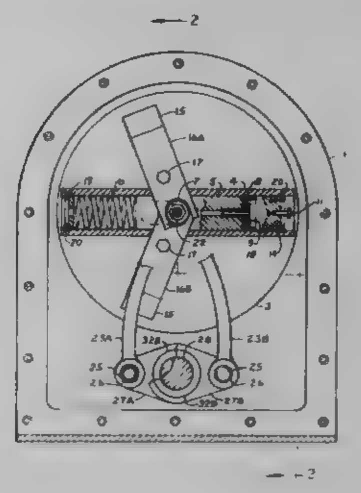
Kenneth R. Runde, P.O. Box 307, Tavernier, Fla. 33070

Filed Oct. 24, 1985, Ser. No. 664,170

Int. Cl.⁴ F16H *29/04, 21/20;* F16C *3/28*

U.S. Cl. 74—117 6 Claims

1. A rotary speed reducer with continuously variable output comprising: a housing including an input shaft therein disposed in driving engagement with a mounting disc fitted with a movable crank pin, two connecting rods mounted thereon and connected to the outer end of two rocker arm assemblies, each rocker arm assembly comprising an overrunning clutch secured between the bore thereof and an output shaft; an assembly comprising a cylinder, and a piston movably mounted within said cylinder, a slot means formed in said cylinder for receiving said crank pin therethrough and a hole means formed in said piston for connecting said crank pin to said piston, the above assembly secured to said mounting disc with the crank pin aligned with the center of rotation of the input shaft, a return spring placed in said cylinder and secured in biasing engagement with said piston, a hydraulic cup seal secured to the piston; a pair of counterweights secured to the ends of counter balance levers pivotally mounted on said mounting disc, ends of said counter balance levers engaging the crank pin; and a hydraulic system for controlling the position of the crank pin, said hydraulic system comprising a pump and reservoir, a check valve connecting said pump to a pressure release valve, said pressure release valve being connected to a rotating shaft seal mounted on said housing, and a conduit structure connecting said cylinder to said rotating shaft seal, whereby hydraulic fluid may be supplied to the cylinder to change the position of said crank pin.



[redacted]

GUIDE SYSTEM COMPRISING A GEAR RACK, APPARATUS COMPRISING SUCH A SYSTEM, AND [redacted]

Michel P. Beugin, Flers, France, assignor to U.S. Philips Corporation, New York, N.Y.

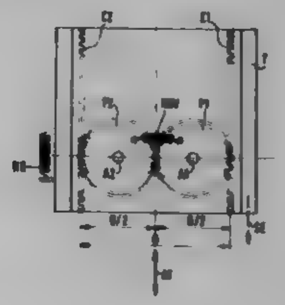
Filed Jul. 11, 1986, Ser. No. 884,801

Claims priority, application France, Jul. 16, 1985, 85 10858

Int. Cl.⁴ F16H *1/04, 19/04*

U.S. Cl. 74—422 3 Claims

1. A video or audio apparatus comprising
a substantially horizontal base,
a drawer movable linearly relative to said base from a rest position to a displaced position,
bearing means between said base and said drawer to facilitate sliding movement therebetween,
two gear racks fixed to said drawer, said racks being disposed in a substantially horizontal plane parallel to said [redacted]
two pinion gears, each having an axis of rotation fixed relative to said base and perpendicular to the plane of said racks, each gear being in mesh with a respective rack, said two pinion gears being meshed with each other as well as with respective racks,
a single coil spring for urging said drawer toward said rest rest position, said spring having opposite ends which are attached to respective pinion gears.



[redacted]

[redacted]

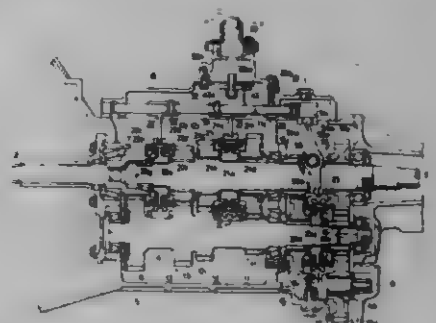
Touhei Yamaguchi; Kazuhiko Moriyama, and Ethuo Shirai, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, [redacted]

Filed Aug. 18, 1986, Ser. No. 897,987

Claims priority, application Japan, Aug. 19, 1985, 60-182387; Aug. 31, 1985, 60-192329; Sep. 9, 1985, 60-138315[U]

[redacted]

U.S. Cl. 74—473 R 17 Claims



1. A vehicle gear transmission including a countershaft adapted to be driven by an engine drive shaft, a plurality of first gears provided on said countershaft, an output shaft carrying a plurality of second gears which are paired and in meshing engagement with respective ones of the first gears, one of the gears in each pair being mounted on one of the countershaft and the ouput shaft to which said one gear is associated for rotation with said one shaft, the other of the gears in the pair being mounted on the other shaft for free rotation, connecting means for connecting said other gear with said other shaft, shifting means for selectively actuating said connecting means so that selected one of said other gears is connected with said other shaft to establish a power transmitting gear train of a desired gear ratio, a transmission casing receiving said countershaft, output shaft, first gears and second gears, an extension housing provided on one end portion of the transmission casing at which said output shaft is located and extended therethrough, said pairs of gears including gears for an overdrive gear stage and for a reverse gear stage, the first gears for the overdrive and reverse gear stages being adjacent to each other and freely rotatable on the countershaft, the reverse gear stage being provided with an idler gear, said idler gear mounted on an idler shaft carried by the extension housing, the overdrive gear stage and the reverse gear stage being disposed close to

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the extension housing within the transmission casing, forward gear stages other than the overdrive and reverse gear stages being disposed within the transmission casing opposite the extension housing within the transmission casing, the forward gear stages being disposed in such an order that as the reduction ratio of a gear stage becomes large, the location of the gear stage becomes closer to the extension housing, said connecting means being provided in common between said first gears for the overdrive and reverse gear stages for alternately connecting said first gears for the overdrive and reverse gear stages to said countershaft, shifting means including shifting rod means and reversing lever means for reversing direction of movement of the shifting rod means and transmitting the movement of the shifting rod means to the connecting means to actuate the connecting means, said reversing lever means being adjustably supported by eccentric pin means.

4,757,727
DIFFERENTIAL DEVICE FOR A POWER TRANSMISSION APPARATUS

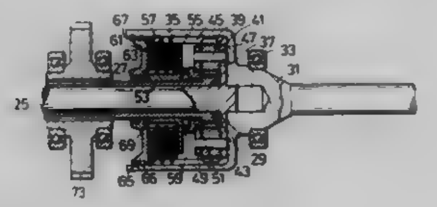
Masao Teraoka, Sano, and Osamu Ishikawa, Tochigi, both of Japan, assignors to Tochigifujisangyo Kabushikigaisha, Tochigi, Japan

Filed Feb. 25, 1986, Ser. No. 832,984

Claims priority, application Japan, Feb. 25, 1985, 60-24679[U]; Feb. 26, 1985, 60-25411[U]; May 27, 1985, 60-112139

Int. Cl.⁴ F16H *1/42, 1/44*

U.S. Cl. 74—711 11 Claims



1. In a power transmission apparatus having an input shaft means for receiving power, coaxially arranged first and second output shaft means for delivering power, and gear means for drivingly connecting said input shaft means to said first and second output shaft means and for permitting said first and second output shaft means to rotate at different speeds with respect to each other, means for limiting the speed differential between said first and second output shaft means, said means comprising:

- a clutch member mounted on said first output shaft means, said clutch member being both axially movable on and rotatable with said first output shaft means;
- first clutch plates axially movable on and rotationally fixed with respect to said clutch member;
- second clutch plates axially movable on and rotationally fixed with respect to said second output shaft means; said first and second clutch plates being arranged in a mutually axially spaced alternating sequence within a common chamber which is formed between said first and second output shaft means and which is filled with a viscous fluid; and
- interengaging cam means carried on and responsive to relative angular movement above a predetermined level between said first output shaft means and said clutch member for axially urging said first and second clutch plates into frictional engagement with each other to thereby establish a friction clutch connection between said first and second output shaft means.

4,757,728
ALL-WHEEL LIMITED SLIP DIFFERENTIAL SYSTEM IN THE POWER TRAIN OF A MOTOR VEHICLE

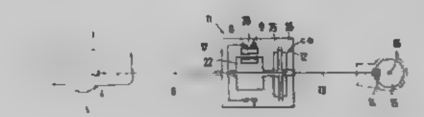
Hermann Pitsch, Wimsheim, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Feb. 13, 1987, Ser. No. 14,858

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1986, [illegible]

Int. Cl.⁴ F16H *1/44, 1/42*

U.S. Cl. 74—711 11 Claims



1. An all-wheel limited slip differential system in a power train of a front axle and a rear axle of a motor vehicle, having an intermediate planetary transmission in the direct through drive and a clutching device engageable at its planetary carrier, the gear ratio for a direct through drive deviating slightly from 1:1, but the gear ratio to the clutching device being significantly higher, the planetary transmission comprising:

- an inlet ring gear that is torsionally fixed with respect to a drive shaft;
- an outlet ring gear having a slightly different number of teeth that is coaxial and adjacent to said inlet ring gear and is torsionally fixed with respect to an output shaft; and
- at least one planetary wheel that engages jointly with both ring gears, and is connected to the planetary carrier and rotates together with said planetary carrier.

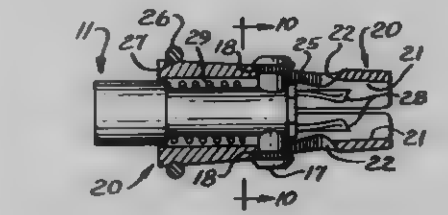
4,757,729
ADJUSTABLE SOCKET FOR A WRENCH

Werner W. Martinmaas, c/o Nevada Motorcycle Specialties, 48 Glen-Carran Cir., Sparks, Nev. 89431

Filed Jun. 18, 1986, Ser. No. 875,458

Int. Cl.⁴ B24B *3/00*

U.S. Cl. 81—90.2 10 Claims



1. An adjustable socket for turning threaded fasteners that have a polygonal head, said socket comprising, in combination:

- a cylindrical core member that has a rearward end portion adapted for detachably, fixedly securing said core member to a fastener driving tool;
- a pair of fixed studs at a forward portion of said core member, said studs having shanks that extend laterally radially outwardly in opposite directions from one another, and said studs having outer extremities provided with enlarged heads;
- a pair of longitudinally movable jaw members supported upon and flanking the core member, said jaw members having forward gripping portions that cooperate to form a gripping socket forward of the core member that may span a fastener head, each jaw member having inner surface portions that ride on the core member to move the gripping portions outwardly and thus increase the span of the socket as the jaw members move rearwardly, and a longitudinal slot in each jaw member that surrounds a one of said stud shanks and slides therealong as the jaw member moves longitudinally, and said slots having peripheral longitudinal surfaces that ride beneath said enlarged heads to limit said movement outwardly and retain the forward end portions of the jaw members on the core member, and the peripheral surfaces of each of said longitudinal slots sloping progressively radially inwardly from the rear toward the front of the slot so that the span across the jaw members is at a minimum when the jaw members are at their extreme forward position and said span enlarges as the jaw members move rearwardly;
- retaining means that hold the rearward end portions of said jaw members on the core member;
- and a compression spring surrounding the core member that biases the jaw members forwardly and thereby urges them toward one another.

4,757,730
DEVICE FOR RELEASING CONICAL CONNECTORS

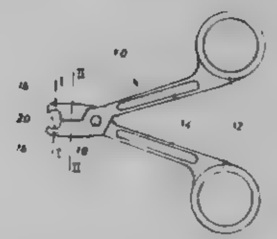
Amir Porat, 22 Rachvat Ellan St. Givat Shmuel, Ramat Ellan, and Michael Porat, 52 HaMitnadev St., Tel Aviv, both of Israel

Filed May 19, 1986, Ser. No. 864,403

Claims priority, application Israel, Jun. 19, 1985, 75561

Int. Cl.⁴ B25B *7/02, 27/02*

U.S. Cl. 81—426.5 2 Claims



1. A tool for separating assembled conical connectors comprising pivoted handle means moveable between open and closed positions and including opposing jaw portions, each jaw further including a semi-circular recess dimensioned to encircle the periphery of one of the conical connectors to be separated, each jaw further including a substantially complementary wedge-shaped cross-sectional portion configured to slidingly engage the other upon manipulation of said handle means and move said jaws laterally away from each other when said handle means is moved to said closed position.

4,757,731
METHOD AND APPARATUS FOR SELECTING THE BIAS UPON STACKS OF SHEETS IN GUILLOTINE TYPE CUTTING MACHINES

Wolfgang Mohr, Hundshager Weg 42, D-6238 Hofheim, Fed. Rep. of Germany

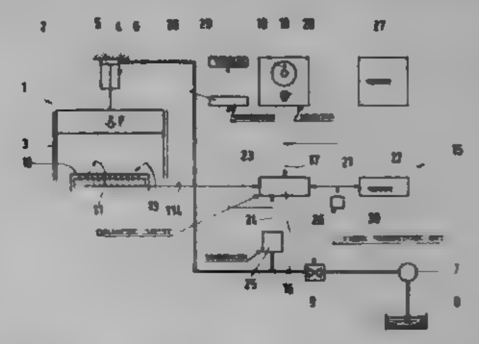
Filed Apr. 23, 1987, Ser. No. 41,730

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1986, [illegible]

Int. Cl.⁴ B26D *7/04*

U.S. Cl. 83—13 19 Claims

1. A method of regulating the force with which stacks of overlapping sheets are biased against a support during severing in a machine wherein stacks requiring longer and shorter cuts are severed in a predetermined or random sequence, comprising the steps of monitoring the stacks including ascertaining the lengths of the cuts to be made therein and generating signals whose characteristics are indicative of the ascertained lengths; selecting a basic force; and altering said basic force for each stack as a function of the characteristics of the respective signal so that the applied force is greater when the cut to be made is longer and lesser when the cut to be made is shorter.



4,757,732
WEB SLITTING APPARATUS

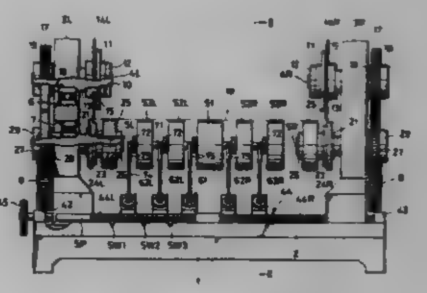
Shinichi Arima, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 2, 1986, Ser. No. 937,182

Claims priority, application Japan, Dec. 2, 1985, 60-269250; Dec. 16, 1985, 60-281199

Int. Cl.⁴ B26D *1/24*

U.S. Cl. 83—425.2 10 Claims



1. An apparatus for slitting a web material to a desired width which includes pairs of upper and lower slitting means, said apparatus comprising;

- means for moving said pairs of upper and lower slitting means toward and away from each other so as to adjust the distance between said pairs of upper and lower slitting means to said width;
- a plurality of spacer rollers for supporting said web material;
- means for supporting said spacer rollers independently for rotation; and
- means for actuating said spacer roller supporting means to position selectively said spacer rollers either between one of said pairs of upper and lower slitting means or out of the path of said one pair of slitting means as said pairs of slitting means approach each other, thereby holding said web material flat over almost all said width by varying the number of spacer rollers that support said web material directly as the distance between said pairs of slitting means.

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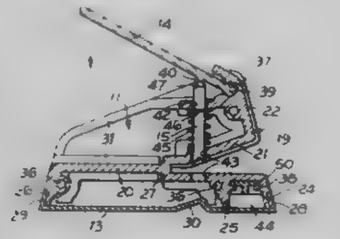
4,757,733
[redacted]

Terence Barlow, Failsworth, England, assignor to Perforex Limited, Gorton, England
Filed May 5, 1987, Ser. No. 46,093
Int. Cl.⁴ B26D *5/08*
U.S. Cl. 83—588 **20 Claims**

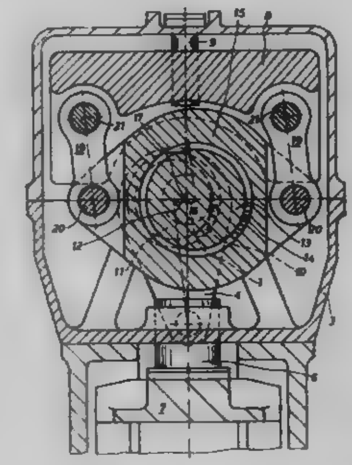


1. In a punch comprising:
a base portion, a support portion extending upwardly from said base portion, said base portion and said support portion including respective sections juxtaposed to define a throat region of the punch;
means defining aligned openings in said juxtaposed sections;
cutting tools mounted in said aligned openings;
spring bias means biasing said cutting tools upwardly;
and a press bar mounted on said support portion so as to pivot relative thereto, and, upon pivoting downwardly, to push said cutting tools against said spring bias means downwards through said aligned openings;
the improvement wherein said base portion and said support portion terminate in opposed free ends and are of constant cross-section throughout their lengths and free ends, a pair of separate end plates, a fastener means mounting said end plates on the opposed free ends of the portions, said end plates overlying said free ends and having means extending laterally inward of the free ends and cooperating with said free ends for supporting and rigidifying said base and support portions with said respective sections in juxtaposition to define said throat region.

4,757,734
BALANCING MEANS IN A PUNCHING MACHINE

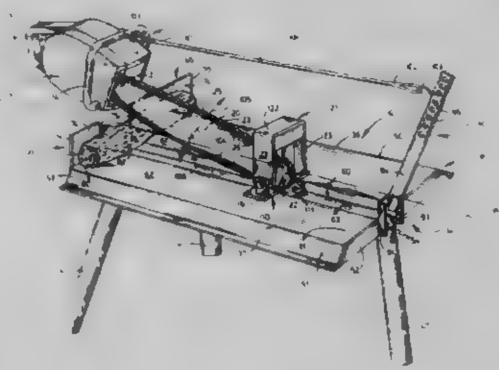
August T. Portmann, Arbon, Switzerland, assignor to Bruderer AG, Frasnacht-Arbon, Switzerland
Filed Feb. 12, 1987, Ser. No. 13,972
Claims priority, application Switzerland, Apr. 28, 1986, [redacted]
Int. Cl.⁴ B30B *1/06;* **B26D** *5/14*
U.S. Cl. 83—615 **3 Claims**

1. A punching machine, comprising:
a machine frame;
a crankshaft rotatably supported on the machine frame, the crankshaft having eccentric sections;
two punch connecting rods, each for connection at one end to a ram, the opposite ends of the punch connecting rods being rotatably supported on respective eccentric sections of the crankshaft;
a counterbalance weight guided from the machine frame for linear movement counterbalancing oscillating forces;
a yoke rotatably supported on an eccentric section of the crankshaft between the punch connecting rods for counterbalancing rotating forces, the yoke having opposite lateral ends; and
two counterbalance connecting rods each pivotably connected, at one end, respectively to one of the opposite lateral ends of the yoke and, at the opposite end, to the counterbalance weight.



4,757,735
APPARATUS FOR SEVERING A WORK OBJECT AND [redacted]

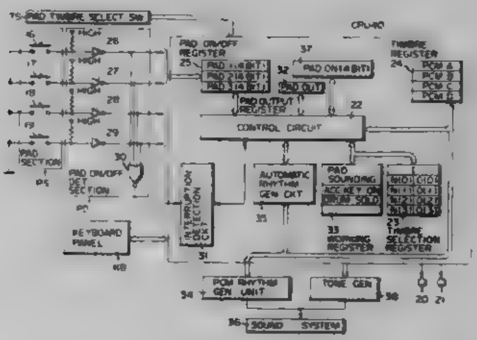
Bruce R. Olson, 458 S. Clovis Ave., #105, Fresno, Calif. 93727
Continuation of Ser. No. 816,365, Jan. 6, 1986, abandoned. This application Feb. 10, 1987, Ser. No. 13,032
Int. Cl.⁴ B27B *17/02*
U.S. Cl. 83—797 **8 Claims**



1. An apparatus for severing a work object and the like comprising
means for supporting a work object to be severed in a predetermined work station, the support member having a substantially planar base member which has formed therein a recessed channel with a cross section having the shape of a base of a truncated right triangle;
means for severing a work object pivotally mounted by a pivot assembly on the base member, the means for severing the work object movable along a path of travel between a ready position wherein the severing means is releasably affixed in spaced relation to the work station and a severing position wherein said severing means is movable into cutting relation to the work object, and the pivot assembly mounts a U-shaped yoke which is screw-threadably mounted on the pivot assembly, said pivot assembly being dimensioned for detachably slidable mounted receipt internally of the channel, said yoke further having formed therein a pair of bolt receiving stations, each bolt receiving station being screw-threadably adapted to receive a bolt, the pair of bolt receiving stations being aligned in substantial registry with each other;
means mounted on the base for releasably affixing and selectively imparting pivotal motion to the severing means along the path of travel;
a work stop mounted on the base in a substantially normal attitude to restrain the work object being severed on the base; and
means borne by the base for limiting the motion of the severing means in the severing position to achieve a cut in the work object of a predetermined depth.

4,757,736
ELECTRONIC MUSICAL INSTRUMENT HAVING RHYTHM-PLAY FUNCTION BASED ON MANUAL OPERATION

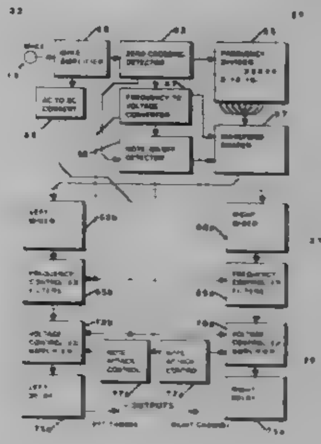
Yoichiro Tajima; Hideo Yamaya, both of Tokyo, and Tomohisa Ishikawa, Kawagoe, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan
Filed Oct. 6, 1986, Ser. No. 915,710
Claims priority, application Japan, Oct. 15, 1985, 60-227812; Nov. 27, 1985, 60-266999; Dec. 16, 1985, 60-282574
Int. Cl.⁴ G10H *1/06, 1/40;* **G09B** *1/04*
U.S. Cl. 84—1.03 **29 Claims**



1. An electronic keyboard musical instrument capable of manual rhythm play, comprising:
a keyboard having a plurality of keys for instructing the generation of a note signal when a corresponding key is operated;
note signal generating means for generating a note signal according to a note signal generation instruction from said keyboard;
manually operable operating means provided in a casing with said keyboard provided thereon, said operating means being discrete from said keyboard and including a plurality of pad keys;
control means for detecting the operation of said operating means and instructing the generation of a rhythm sound when operation of one of the plurality of pad keys is detected;
automatic rhythm play means for instructing an automatic generation of a rhythm sound according to a kind of a preliminary designated rhythm; and
rhythm sound signal generating means for generating a rhythm sound signal according to an instruction of both said control means and said automatic rhythm play means;
wherein said automatic rhythm play means includes means for stopping the generation of rhythm sounds in at least part of an automatic rhythm play in response to an operation of the one pad key of said manually operable operating means.

4,757,737
[redacted]

Ugo Conti, 7658 Leviston Ave., El Cerrito, Calif. 94530
Filed Mar. 27, 1986, Ser. No. 844,930
Int. Cl.⁴ G10H *1/057, 1/12*
U.S. Cl. 84—1.12 **12 Claims**



1. An electronic musical instrument comprising:
whistle processing means, responsive to a whistle signal representative of a human whistling, for producing a plurality of signals directly representative of said whistling, said signals including a square wave, referred to as the frequency reference signal, having zero crossings corresponding to the zero crossings of said whistle signal, a voltage level, referred to as the frequency of said whistle signal, an analog signal, referred to as the amplitude envelope signal, representative of the amplitude envelope of said whistle signal, and a digital signal, referred to as the note-on signal, which is asserted when said whistle signal is present above a particular threshold;
voice component generator means responsive to said frequency reference signal, said note-on signal, and said frequency voltage, for generating a set of signals, referred to as voice component signals, at selected subharmonics of said frequency reference signal, said set including at least one substantially sinusoidal signal and at least one non-sinusoidal periodic signal;
superposition means for providing a voice signal, which voice signal includes a combination of a predetermined subset of said voice component signals, said superposition means including first user control means for adjusting the relative proportions of voice component signals within said predetermined subset;
harmonic control means, responsive to said voice signal and said frequency voltage, for providing a filtered voice signal having altered harmonic content, said harmonic control means including a frequency-controlled filter operable to track the fundamental frequency of said frequency reference signal, and further controllable by the user to selectively pass a desired set of harmonics of said voice component signals;
amplitude modulation means, responsive to said filtered voice signal, said amplitude envelope signal, and said note-on signal, for shaping the time evolution of said filtered voice signal within the time interval during which said note-on signal is asserted; and
note prolongation means, responsive to the output of said modulation means, for shaping the time evolution thereof after said note-on signal is withdrawn.

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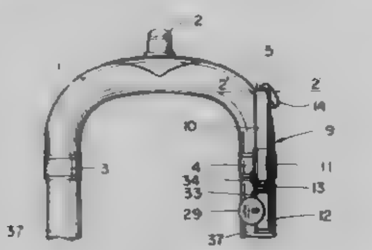
4,757,738
WATER KEY FOR BRASS MUSICAL INSTRUMENTS

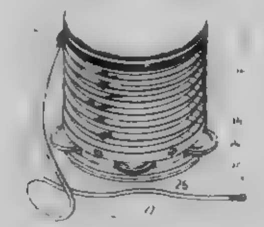
Joseph B. Armstrong, 2113 Brookview Dr., Nashville, Tenn. 37214
Filed Jul. 23, 1987, Ser. No. 76,848
Int. Cl.⁴ G10D *7/10*
U.S. Cl. 84—397 12 Claims



1. A water key for brass musical instruments, comprising: a control rod with distal and proximate ends, a valve element at said distal end, and a protuberance between said ends; a ferrule means through which said proximate end may pass but not said protuberance; a push element affixed to said proximate end; a torsional spring means concentric with and superposed over said proximate end, said spring means applying torsional bias to said control rod; and said ferrule means secured in conformity with a tube forming part of a musical instrument with said torsional spring means forcing said valve element in registry with a valve opening in said tube.

4,757,739
BELLOWS TYPE TOY TAMBOURINE

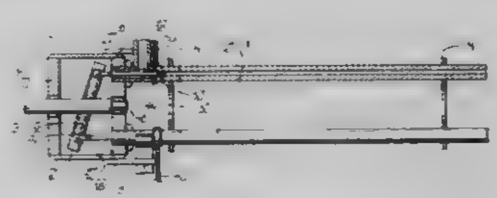
Thomas Yeh, 6th Fl., No. 210 An-Ho Rd., Taipei, Taiwan
Filed Sep. 15, 1986, Ser. No. 907,383
Int. Cl.⁴ G10D *13/02*
U.S. Cl. 84—418 9 Claims



1. A bellows-type toy tambourine comprising:
a first ring member having a periphery;
a first drumhead stretched over the periphery of said first ring member, said first drumhead made of a material having an elasticity appropriate for generating a drum beat;
a second ring member having a periphery;
a second drumhead stretched over the periphery of said second ring member, said second drumhead made of said material having an elasticity appropriate for generating a drum beat;
an expandable and contractable bellows having a first end attached to said first ring member and a second end attached to said second ring member such that said first and second ring members and said bellows define an interior space, wherein one or both of said first and second ring members comprise means for allowing air into said interor space, such that air is expelled from the interior space when the bellows is contracted and drawn into the space when the bellows is expanded.

4,757,740
MULTIPLE BARREL GUN

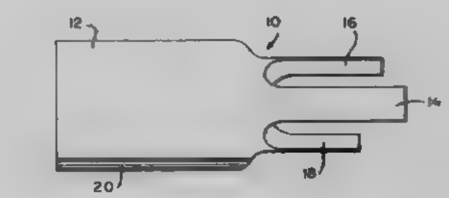
Douglas F. McFarland, Davis City, Iowa 50065
Filed Jun. 1, 1987, Ser. No. 56,381
Int. Cl.⁴ F41F *1/04;* F41D *7/00*
U.S. Cl. 89—7 12 Claims



1. A multiple barrel gun, comprising:
a plurality of parallel barrels arranged in a cylinder and having forward and rearward ends,
a shell feeder rod moveably received in the rear of each barrel,
shell feeding means for providing shells to each barrel forwardly of said feeder rod,
a rotatable wobble plate connected to each of said feeder rods, and
a power means connected to said wobble plate for rotating said plate and reciprocally moving said feeder rods in and out of said barrels for moving said shell into a firing position and then moving to a retracted loading position for another shell to be fed into said barrel from said shell feeding means.

4,757,741
MEANS FOR EFFECTING RANDOM DISPERSION OF BULLETS

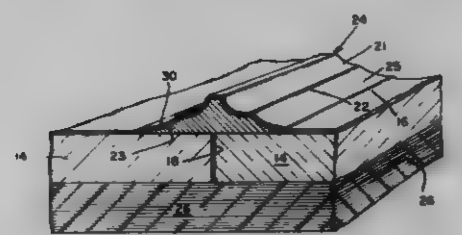
Jack Brothers, 806 Tuxedo Dr., Fort Walton Beach, Fla. 32548
Filed Dec. 3, 1986, Ser. No. 937,912
Int. Cl.⁴ F41F *17/12*
U.S. Cl. 89—14.05 5 Claims

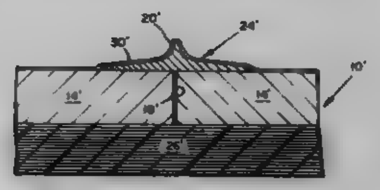


1. Means for effecting random dispersion of bullets from a gun barrel, comprising:
a sleeve, having a given inside diameter, for coupling thereof to the muzzle of a gun barrel which has an outside diameter substantially corresponding to said given inside diameter, and (b) defines a bullet exit pathway of a specified diameter;
said sleeve has a plurality of vibratory reeds or fingers at an end thereof arranged in a generally radial pattern which substantially defines a diameter, occupied by said reeds or fingers, which is greater then said specified diameter of such pathway, and smaller than said inside diameter of said sleeve, to accommodate propellant gasses between said reeds or fingers and bullets exiting from such muzzle, and to insure that such reeds or fingers do not contact such exiting bullets.

4,757,742
COMPOSITE BALLISTIC ARMOR SYSTEM

Bernard Mazelsky, West Covina, Calif., assignor to Ara, Inc., City of Industry, Calif.
Continuation-in-part of Ser. No. 424,130, Sep. 27, 1982, abandoned. This application Aug. 23, 1984, Ser. No. 654,097
Int. Cl.⁴ F41H *5/04*
U.S. Cl. 89—36.02 5 Claims



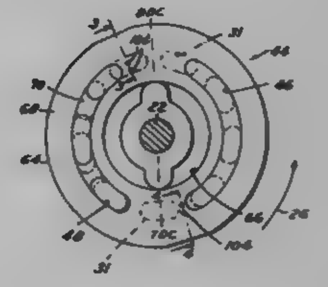


1. In a ballistic armor system having a hard surface facing formed of individual armor elements positioned to leave gaps between the elements, the armor system being a composite having backing behind the hard surface facing comprised of a material capable of receiving the fragments of projectiles that penetrate the hard surface facing, the system comprising a strip of hardened material secured to adjacent armor elements over the gaps, said strip having a larger thickness in the area over the gaps than in the area at the edges of the gaps whereby said strip deflects an impacting projectile to cause a directional change whereby the projectile is forced to traverse a greater thickness of armor than would be traversed in a projectile path normal to the armor;
said strip having a central peak positioned substantially over the gaps, two inner contoured faces symmetrically disposed laterally adjacent said central peak with upper edges defining said central peak, and two outer contoured faces symmetrically disposed about the central peak with upper edges adjacent to the lower edges of said inner contoured faces wherein the bottom edges of said inner contoured faces have slopes less steep than the upper edges of said outer contoured faces; and
said inner contoured faces have curvatures defined by the arc of a circle having a radius of 0.25 of the total width of the strip, said inner contoured faces having edges at the locations defined by the mid points of lines extending from the center of the central peak to the edges of the strip, said outer contoured faces each tapering asymptotically from the respective bottom edge of each inner contoured face, each asymptote approaching an angle of 4 degrees.

4,757,743
POWER TRANSMISSION

Peter Tovey, Jackson, Miss., assignor to Vickers, Incorporated, Troy, Mich.
Filed Apr. 29, 1987, Ser. No. 44,041
Int. Cl.⁴ F01B *13/00, 13/04*
U.S. Cl. 91—6.5 7 Claims

1. A rotary hydraulic machine comprising a housing, a shaft mounted within said housing for rotation in a predetermined direction about a shaft axis, cylinder means coupled to said shaft for corotation therewith within said housing and including a cylinder having a cavity parallel to said axis, piston means including a piston disposed in said cylinder cavity, high and low pressure fluid ports in said housing, and valve plate means for selectively porting said cylinder means to said fluid ports,
said valve plate means comprising a valve plate affixed within said housing and having first and second diametrically opposed arcuate slots respectively coupled to said high and low pressure fluid ports, said slots being at a radius from said axis corresponding to the radius of said cylinder cavity from said axis and having arcuate ends at positions for timing porting of said cylinder to said ports at preselected pressure condition at said ports, and means for altering port timing as a function of pressure at said high pressure port comprising:
first and second pressure valves mounted on said plate adjacent to respective leading edges of said first and second slots with respect to said predetermined direction of rotation, each said valve including a valve element responsive to pressure in said first slot for connecting said cylinder means to the adjacent said slot and thereby advancing port timing of said cylinder to said ports,
each of said first and second valves comprising a cylindrical bore opening radially outwardly of said plate, a pilot port extending through said plate and coupling said first slot to a radially inner end of said bore, a pair of valve ports respectively extending from said bore to the adjacent said slot and to a face of said plate engaged by said cylinder means, said valve element comprising a valve spool having a land for selectively interconnecting said valve ports as a function of spool position, and spring means captured in compression against a radial outer end of said spool,



said plate being mounted in said machine within a cavity containing hydraulic fluid at case pressure, each said spring means being disposed within a valve cavity ported through a damping orifice to case pressure,
said housing comprising first and second housing sections sealingly affixed to each other, at least one fluid passage extending between said sections, said machine further comprising a cylindrical cavity formed by opposed cavity half-sections in said housing sections, means connecting said cylindrical cavity to fluid at case pressure, an annular channel in each said housing section surrounding and opening into the associated said cavity half-sections, said at least one fluid passage in each said housing section terminating in the associated said channel, and a hollow tubular sleeve captured within said cylindrical cavity, said sleeve having outwardly facing annular channels opposite to said channels in said housing sections, means coupling said outwardly facing channels to each other and means sealingly engaging opposed wall sections to said cylindrical cavity.

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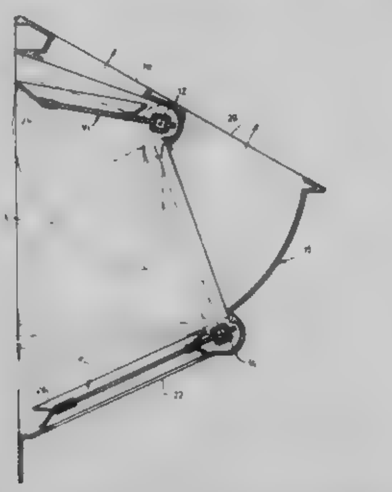
4,757,744

APPARATUS FOR CONTROLLING FLAPS IN AN INSTALLATION FOR HEATING AND VENTILATING OR FOR AIR-CONDITIONING A MOTOR VEHICLE

Jean-Francois Bouvet, Dampierre, France, assignor to Valeo, Paris, France

Filed Dec. 11, 1985, Ser. No. 807,872
Claims priority, application France, Dec. 20, 1984, 84 19579
Int. Cl.⁴ F01L *15/00*
U.S. Cl. 91—189 A 13 Claims



1. Apparatus for controlling plural moving members such as flaps in an installation for heating and ventilating or for air conditioning the cabin of a motor vehicle, the apparatus including single acting type actuators having piston rods connected to said moving members for displacement thereof, a pressurized fluid distributor connected firstly to feed orifices of said actuators and secondly to a source of fluid under pressure and to an exhaust, and distributor control means capable of occupying a plurality of fixed states or positions which correspond to predetermined positions of the moving members; the improvement comprising fluid servo control means for bringing the displacement of at least one moving member under the control of the displacement of at least one other moving member, said servo control means detecting the presence or absence of a moving member in a predetermined position and controlling displacement of another moving member as a function of said detected presence or absence, said servo control means comprising chambers formed in the distributor, with each chamber being firstly suitable for connection to the feed orifice of the actuator for displacing a specific moving member when said servo control means is in a predetermined state or position and to be isolated therefrom when the servo control means is in another position or state, and secondly for being connected to the exhaust or to the source of fluid under pressure by means associated with another moving member solely when said other moving member is in a predetermined position, and to be isolated therefrom when said other moving member is in some other position.

4,757,745

MICROWAVE ANTENNA AND DIELECTRIC PROPERTY CHANGE FREQUENCY COMPENSATION SYSTEM IN ELECTROHYDRAULIC SERVO WITH PISTON POSITION CONTROL

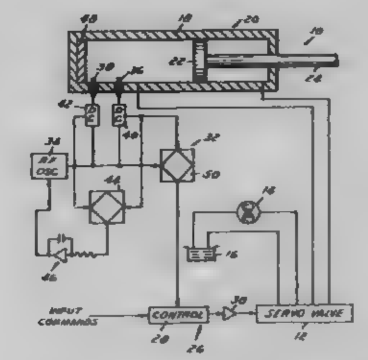
Lael B. Taplin, Union Lake, Mich., assignor to Vickers, Incorporated, Troy, Mich.

Filed Feb. 26, 1987, Ser. No. 19,189
Int. Cl.⁴ F15B *13/16;* G01R *27/04;* F01B *25/26*
U.S. Cl. 91—361 8 Claims

1. An electrohydraulic servo system which includes an actuator having a cylinder and a piston variably positionable therewithin, a servo valve responsive to valve control signals for coupling said actuator to a source of hydraulic fluid, and means responsive to position of said piston within said cylinder for generating said valve control signals, characterized in that said position-responsive means comprises

an rf generator having a frequency control input,

antenna means positioned within said cylinder and coupled to said generator for radiating rf energy within said cylinder,



means coupled to said antenna means and responsive to rf energy at said antenna means for indicating position of said piston within said cylinder, and

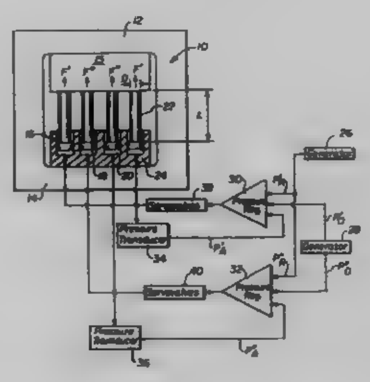
means responsive to variations in dielectric properties of said hydraulic fluid within said cylinder for providing a control signal to said frequency control input of said generator to automatically compensate frequency of said rf energy for variations in said dielectric properties.

4,757,746

METHOD OF AND APPARATUS FOR CONTROL OF A FORCE APPLIED TO OR THE POSITION ASSUMED BY A WORK EFFECTING ELEMENT

Vladimir B. Ginzburg, Pittsburgh, Pa., assignor to United Engineering, Inc. and International Rolling Mill Consultants, Inc., both of Pittsburgh, Pa.

Filed Aug. 26, 1987, Ser. No. 89,421
Int. Cl.⁴ F15B *13/16*
U.S. Cl. 91—361 6 Claims



1. In a method of operating a machine having a work effecting element, wherein the element is designed to either apply, maintain or re-establish a desired force or assume, maintain or re-establish a desired position and wherein the element is connected to and is moved by at least two fluid actuator means which is subject to internal undesirable affects of friction, the steps comprising:

controlling the flow of fluid to said actuator means to obtain the desired force or position of said element,

imposing controlled first oscillations on a said first fluid actuator means in a manner to reduce said frictional forces and,

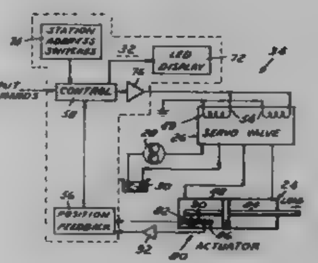
substantially simultaneous with said first oscillations imposing second controlled oscillations on a said second fluid actuator means of substantially the same amplitude and substantially opposite in phase to the first oscillations to reduce the first oscillations disturbing said desired force or position of said element obtained through said actuator means.

4,757,747

POWER TRANSMISSION

Albert Blatter, Highland; Jeffrey P. Cherry, Rochester; Ronald E. Chipp, Oak Park; James A. Kessler; Richard S. Leemhuis, both of Troy; John A. Miller, Rochester Hills; Melvin A. Rode, West Bloomfield, and Gene Y. Wen, Troy, all of Mich., assignors to Vickers, Incorporated, Troy, Mich.

Continuation-in-part of Ser. No. 849,540, Apr. 8, 1986, abandoned. This application Aug. 29, 1986, Ser. No. 901,816
Int. Cl.⁴ F15B *13/16*
U.S. Cl. 91—362 34 Claims



1. An electrohydraulic system with distributed control comprising a plurality of electrohydraulic devices each including means responsive to a pulse width modulated electronic signal for performing an associated hydraulic operation and sensing means for sensing operation of the associated device and providing a sensor signal as a function of such operation, and master control means coupled to all of said devices for coordinating operation of said devices,

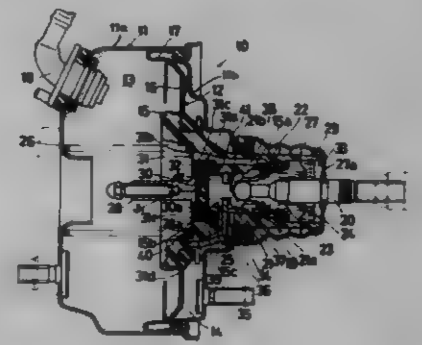
each of said plurality of devices comprising an assembly having on-board microprocessor-based device control means including means for receiving and storing control signals from said master control means, means for receiving said sensor signal indicating operation of the associated said device, means for comparing said sensor signal to said control signals to generate pulse width modulated error signals, means for operating the associated said electrohydraulic device as a function of said pulse width modulated error signals, means for specifying a communication address unique to each said device control means, said master control means being connected to all of said device control means for communication of said control signals to said device control means individually as a function of associated device address, and a watchdog timer connected to receive said pulse width modulated signals and responsive to absence of such signals to indicate an error condition.

4,757,748

VACUUM BOOSTER FOR AUTOMOBILES

Satoshi Kawasumi, Takahama, and Michiharu Nishii, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jun. 17, 1986, Ser. No. 875,217
Claims priority, application Japan, Jun. 20, 1985, 60-93376[U]
Int. Cl.⁴ F15B *9/10*
U.S. Cl. 91—369 A 5 Claims



1. A vacuum booster, comprising:

a push rod movable in an axial direction in resonse to movement of a brake pedal;

a housing having a first and second compartment formed therein;

power piston means located in said housing and operated in response to a pressure differential between said first and second compartments wherein said power piston means further comprises a large diameter opening portion and a small diameter opening portion;

control valve means operatively connected with a front end portion of said push rod and located within said power piston means for controlling said pressure differential between said first and second compartments in response to movement of said push rod;

output means having a rear end portion slidably disposed within said large diameter opening portion of said power piston means;

said control valve means further comprising a valve plunger, one end of which is slidably disposed within said small diameter opening portion of said power piston;

a resilient reaction disc located adjacent said rear end portion of said output means and disposed within said large diameter opening portion of said power piston; and

an elastic member disposed axially between said rear end portion of said output means and said power piston so as to increase a propulsive force of said output means under the condition where the reaction force is not added to said valve plunger from said output means via said resilient reaction disc without causing an excessive elastic transformation of said resilient reaction disc,

said elastic member defining a position of said output means for said power piston for forming a predetermined gap in an axial direction between a front surface of said resilient reaction disc and said output means when said vacuum booster is not operated.

4,757,749

BRAKE BOOSTER

Jean-Pierre Gautier, Aulnay Sous Bois, France, assignor to Bendix France, Drancy, France

Filed Apr. 7, 1987, Ser. No. 35,691
Claims priority, application France, Apr. 8, 1986, 86 04975
Int. Cl.⁴ F15B 9/10
U.S. Cl. 91—369 B 11 Claims

1. A brake booster comprising a housing, a piston structure

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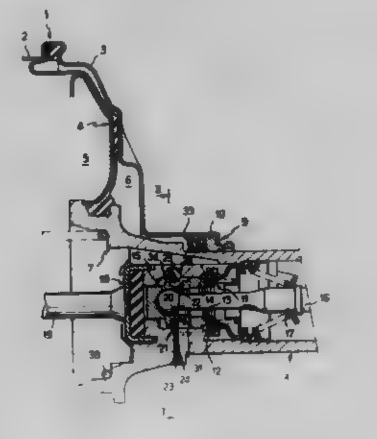
dividing the housing internally into two chambers, distribution valve means arranged in a valve body which is connected with the piston structure and actuable by means of an input member to generate selectively a pressure differential between the chambers, the valve means comprising a plunger mounted axially and slidably in a central bore of the valve body and connected to the input member, the plunger having at least one first shoulder and defining at an end a first flap seat, a second flap seat formed in the valve body concentrically relative to the first flap seat, and flap means mounted in the valve body and stressed elastically toward the first and second flap seats, a restoring spring bearing in the valve body and stressing the input member in a direction opposite the flap seats, and means for positioning the plunger which is arranged in the valve body and which interacts with the plunger to assign to the plunger at least two separate specific positions relative to the valve body, characterized in that the positioning means comprises the combination of a first positioning member fastened in the valve body and having an inner end capable of interacting with a first zone of the first shoulder of the plunger to position the plunger in a specific position of retraction relative to the valve body, and a second positioning member mounted pivotally in the valve body and having a first portion capable of interacting [illegible] zone of the first shoulder of the plunger and a [illegible] capable of interacting, in the vicinity of a posi- [illegible]

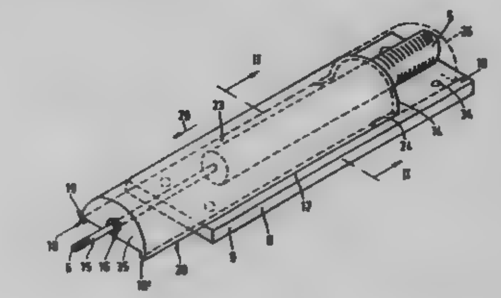


of the cylindrical member through one of the cylindrical member end caps, and being able to be extended from said cylindrical member and retracted back into it,

a support member fixedly joined to a part of said piston rod which is outside of said cylindrical member,

said support member being able to move in translation with the piston rod,

said support member enveloping said cylindrical member in the circumferential direction thereof to a major extent whatever the degree of extension and retraction of said piston rod,



said support member furthermore having two support sections placed symmetrically with respect to a median plane containing the longitudinal axis of the cylindrical member, each said support section being provided with a sliding bearing surface,

a base mounted in spatially fixed relationship with respect to said cylindrical member,

said base having two plane bearing faces running in the length direction of the cylindrical member and each being engaged by a respective one of said bearing surfaces on said support section at least during a part of the stroke of the piston.

4,757,751

RAM COULING AND CYLINDER END SEAL ASSEMBLY FOR HIGH PRESSURE CYLINDER

Jose P. Munoz, Joplin, Mo., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed May 26, 1987, Ser. No. 53,773

[illegible] F16J 15/18; B65D 53/00; E21B 33/00; [illegible]

92—165 R [illegible] Claims

means securing said receiving and centering means in said cylinder against removal thereof via said other end;

said securing means being but a singal retaining ring; [illegible]

said sealing means comprises an annular seal sealingly engaged with a second end of said plunger and with said cylinder;

said receiving and centering means further includes an annular seal seat (a) receiving said seal thereagainst, and (b) set about said second end of said plunger;

said receiving and centering means also includes keying means set in said cylinder, receiving said seal seat thereagainst, and obstructing removal of said seal seat and seal via said other end of said cylinder;

said receiving and centering means further includes annular means, for positioning said keying means, set about said second end of said plunger;

said annular, positioning means has a circumferential land;

said keying means is slidably engaged with said land and is concentric with said annular, positioning means;

said annular, positioning means comprises a sleeve having an outwardly-extending flange;

said cylinder has an annular, recessed shoulder formed in said other end thereof; and

said flange of said positioning means is set against said shoulder.

4,757,752

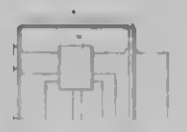
TEA BREWING AND DISPENSING APPARATUS

Donald T. Robins, Croton, N.Y.; John C. Spruill, Willingboro, N.J.; James R. Weldon, New York, N.Y., and Robert W. Wood, Cranbury, N.J., assignors to General Foods Corporation, White Plains, N.Y.

Filed Dec. 16, 1986, Ser. No. 942,561

Int. Cl.⁴ A47J *31/40*

U.S. Cl. 99—279 9 Claims



4,757,753

ESPRESSO COFFEE MACHINE

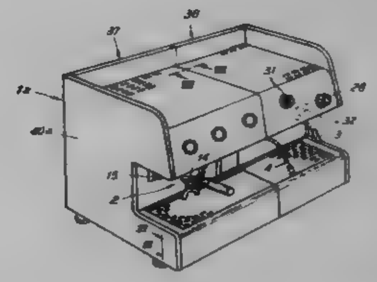
Alberto Pandolfi, Milan, Italy, assignor to Brevetti Gaggia S.p.A., Milan, Italy

Filed Feb. 5, 1987, Ser. No. 11,745

Claims priority, application Italy, Mar. 10, 1986, [illegible]

Int. Cl.⁴ A47J *31/40*

U.S. Cl. 99—290 5 Claims



1. An espresso machine comprising:

(a) at least one autonomous group (A) for the production and dispensing of espresso coffee, said group comprising a hot water generator (5) having a closed kettle (6) and heating means (7) associated with said kettle; an electrically driven pump (8, 9) to feed cold water under pressure from a cold water source, to said kettle (6); a coffee dispensing group (2) including a filter holder (14) apt to contain a dose of ground coffee and a tube (13) connecting said kettle (6) with said coffee dispensing group to feed hot water under pressure to said coffee dispensing group (2) when said electrically driven pump (8, 9) is operated; [illegible]

(b) at least one autonomous group (B) dispensing hot water and steam, said group comprising a hot water and steam generator (22) having a closed kettle (23) and heating means (24) associated with said kettle; a supply conduit (25) to feed cold water to said kettle from a water distribution network; a first delivery conduit (26) connecting through a sh[illegible] to said kettle [illegible]

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Aug. 28, 1986, Ser. No. 901,

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lradelt, Bochum; Wolfgang Kobow, W
Krieger, deceased, late of Wuppertal, all of
ny (by Hildegard Krieger, legal representative),
Hermann Hemscheidt Maschinenfabrik GmbH
tal, Fed. Rep. of Germany

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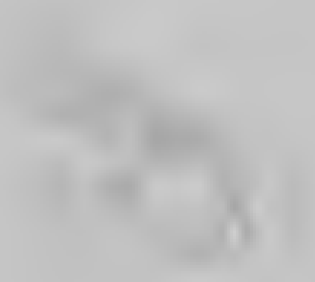

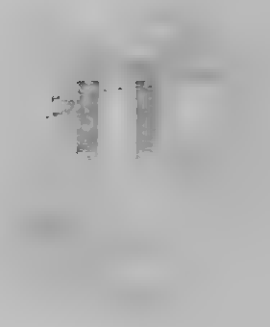

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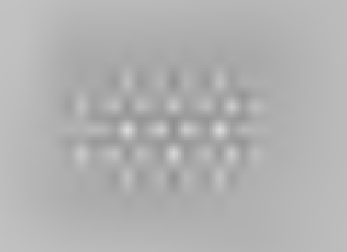

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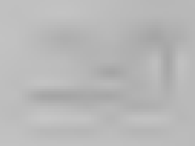

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May 1, 1987, Ser. No. 44 [illegible]

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ERING SYSTEM FOR A VEHICLE

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Yasuharu Oyama; Toru Yasuda, Yoshimichi Kawamoto, and Tsuyoshi Sato, all

Japan, assignors to Honda Giken Kogyo Kabu

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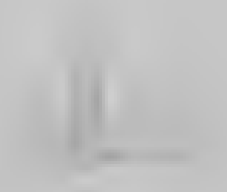

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Sunagawa; Jin Murayama; Nobuharu
Okazaki; Kozi Kamiyama; Chiaki Goto, and Tosl
Kasei, Japan, assignors to Fuji Photo Fil
Minamiashigara, Japan

Filed Apr. 8, 1986, Ser. No.
Claims priority, application Japan, Apr
985, 60-74062; Apr. 8, 1985, 60-74063;
Oct. 11, 1985, 60-226659; Oct. 14, 198
985, 60-228659; Oct. 14, 1985, 60-228

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mikura, Tokyo, and Toshihiko Nishikori, Sagan
Japan, assignors to Canon Kabushiki Kaisha, To
Filed Apr. 14, 1986, Ser. No. 851,0
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J. Bellhouse; Sydney M. Pugh, and Maxwell R. D
Oxfordshire, England, assignors to Bellhouse T
Limited, Abingdon, England
Division of Ser. No. 790,854, Oct. 24, 1985, Pat
This application Apr. 24, 1987, Ser. No

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i Fukuchi, and Kazuchi I
yo, Japan, assignors to Kirin Beer Kab
Filed Jul. 8, 1986, Ser. No. 88
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Filed Jan. 27, 1987, Ser. No. 7,36 [illegible]
[illegible] application Japan, Jul. 31, 1985 60-1 [illegible]
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[illegible] uginami, all of Japan, assignors to To [illegible]
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Filed Aug. 20, 1986, Ser. No. 898,323
[illegible] riority, application Japan, Aug. 22, 198 [illegible]
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assignors to Robotic Vision Systems

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to KLA Instruments Corp.,

Mamoru Kanda, Tokyo; Teruo Udagawa, and Katsuich
Numagami, both of Fukaya, all of Japan, assignors to Ch
chibu Cement Kabushiki Kaisha and Chichibu Engineeri
Kabushiki Kaisha, both of Saitama, Japan
PCT No. PCT/JP87/00128, § 371 Date May 26,
Date May 26, 1987, PCT Pub. No. WO87/052
Date Sep. 11, 1987
PCT Filed Feb. 27, 1987, Ser. No. 69,448
Claims priority, application Japan, Feb. 28, 1986, 61-435

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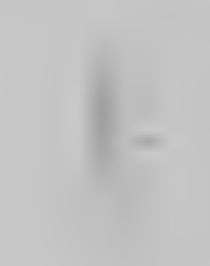
Filed Jan. 29, 1987, Se

Int. Cl.⁴ B65D



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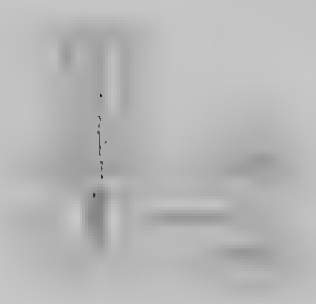

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Roof, Sr., Pittsford; Stephen
N. Dewald, Fairport; Patrick
D. Gramlich; David C. Irving, bot
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Mar. 28, 1986,
application Ja

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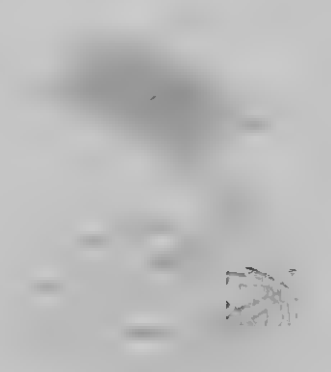

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Isunoo Yasui, Nagoya, and Yoshiharu Hirai, Anjo, both of
Japan, assignors to Brother Industries, Ltd., Nagoya, Japan
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shio Nakai, Nagoya; Osamu Nagata, Aichi; Kenji Sakakibara, Ichinomiya; Michitoshi Akao, Nagoya; Shigeyuki Hayashi, Nagoya; Toshio Takahashi, Nagoya, and Hidetoshi Asada, Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Sep. 24, 1986, Ser. No. 911,133

Claims priority, applicat
er. 4, 1986, 61-46990

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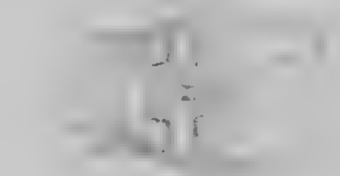
Philip J. Little, South Milwaukee, and Orville C. Kocher Campbellsport, both of Wis., assignors to Wessler Engineering, Inc., West Bend, Wis.

d Dec. 15, 1986, Ser. No. 941,496
Int. Cl.⁴ F16D 9/04



ne element toward the other element, said capturing means enabling the bolt head to be tightened, and

4,755,110
BALL JOINT

Eichi Ito, Meerbusch, Fed. Rep. of Germany, assi
Ehrenreich GmbH & Co. KG, Dusseldorf, Fed.
many

Filed Nov. 20, 1987, Ser. No. 123,346

Claims priority, applica
86, 3639963

chinen- und Ap
Rep. of Germany
Filed Feb. 13

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4,758

METHOD OF I
A DEVICE FOR EFFECTING SAID METHOD

, Shishkin; Nikolai F. Kryazhevskikh, both of Krasno-; Viktor N. Oleinik; Alexei V. Andrianov, both of Moscow, and Yaroslav P. Sushkov, Eisk, all of U.S.S.R., assignors to Trest "Juzhvodoprovod", Krasnodar, U.S.S.R.

CT No. PCT/SU85/00083, § 371 Date Jun. 9, 1986, § 102(e) 1986, PCT Pub. No. WO86/02422, PCT Pub

Filed Oct. 10, 1985, Ser. No. 861,021

4,758,116

ADE DITCHING MACH

ukushino, Machid

14, 1986, Ser. N

r horizontal widt

eans as seen from

center body being in the form of a we

Hans-Gunther Rachner, Berchemer

Hans-Klaus Schott, Beethovenstr

of Fed. Rep. of Germany

Filed Jan. 30

Claims priority, applicati

4,758,117

R THE TRANSPORTATION OF
RIAL AT CONTROLLE

Watanabe; Yasuhiko Kazuaki Tanaka, all of Chiba; Yuichi Kobayashi Hideo Ooishi, Tokyo, and Minoru Kobayashi, To Japan, assignors to Kawasaki Steel Corp. and De tant & Engineering Co., Ltd., both of Tokyo, Jap

Filed Oct. 17, 1985, Ser. No. 788,393

Claims priority, application Japan, Dec. 28, 1984

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Netherlands

Filed Jan. 15, 1987, Ser. No. 3,57[illegible]

Claims priority, application European Pat. Off.

No. [illegible]

RUCTION W

OWER FILE

ing two cutting

a radially outer

ling radially out

l to the radially

circumference of th

different clearan

has a roof-shape

shaped tooth hav

ner and outer cutting ed

clearance face configura

very other tooth being

s for n

supply and

France

4,758,122

TOOL CLAMPING APPARATUS

uaki Kubo, Higashiosaka, Japan, assignor to Daisl

abushiki Kaisha, Osaka, Japan

Filed Feb. 13, 1987, Ser. No. 14,80[illegible]

ies priority, application Japan, Aug. 28, 1985,

g cylindrical article which is provided inside s

PCT No. PCT/NO86/0067 1

date Mar. 4, 1987, PCT

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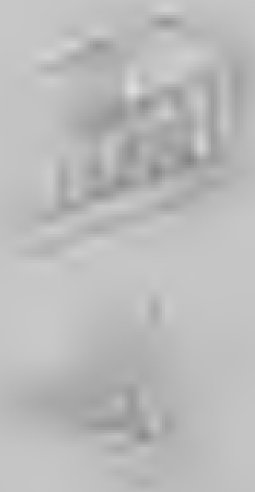

PLATE FEED APPARAT

. Johnson, 5000 Crescent Valley Dr., a
2120 NW. Maser Dr. both of Corvallis

d with said carrier for compressing said

unzo Imai, Yamato; Hiroshi Sato, Tokyo, and Kazuo Iijima
Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha
Tokyo, Japan
Continuation of Ser. No. 620,824, Jun. 15, 1984, abandoned
This application Jul. 28, 1986, Ser. No. 892,734
Claims priority, application Japan, Jun. 24, 1983, 58-112923

Int. Cl.⁴ B65H 3
. Cl. 414—41

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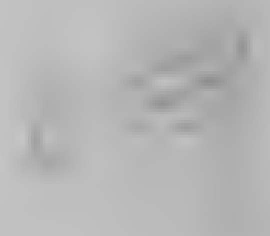

D CAR CARRIER VI

Cincinnati, Ohio

ny Waterworth, Rand

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[illegible]

A ROTOR FO[illegible]
ars Sjoholm, S[illegible]

[illegible]

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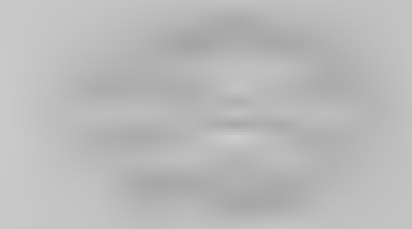

[illegible]

[illegible]holm, Sweden

PCT Pub. No. WO[illegible]

[illegible]986, Ser. No.

[illegible]

[illegible]THOD FOR MANUFACTURING THE[illegible]

[illegible]

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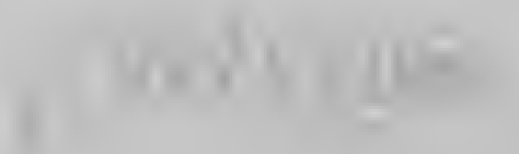
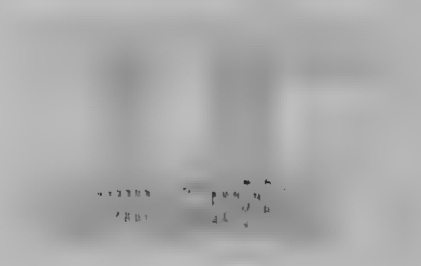


Becker, Berlin, Fed. Rep. of Germany, assig

M Maschinenfabriken GmbH, Berlin, Fed. R

Antonio Pinzrola, V



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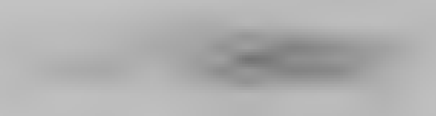
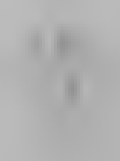
; Jan. 14, 1983, Ser. No. 458,014

ashington Crossing, Pa.,
Holmesville, Pa.





S FOR MANI
R CARDIAC
; Gioacchino Bona, both of Turin; M.
loggia, and Franco Vallana, Turin, all of Italy.

tion of Ser. No. 634,085, Jul. 25, 1984, Pat. No. 4
This application Jun. 6, 1986, Ser. No. 871,8
ims priority, application Italy, Jul. 25, 1983, 6

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otatably secure said scre

nip to each oth

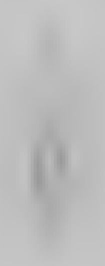
respectively posi
iptured screw member in
and
cluding grasping means to grasp
positioned between said legs, and
i second workpiece when posi

es of said

ncluding parallel nonfacing sur-
isp the second workpiece when

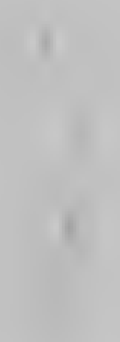
58,160
DENTAL IMPLANT
nail, Pittsburgh, Pa., assignor to Iris International,
urgh, Pa
Filed Nov. 20, 1986, Ser
Int. Cl.⁴ A61C

t, comprising: an endosteal impla
d a hollow core therein, a prosth



point spaced inward
otational forces and str

COPING INSERT FOR USE WITH A DENTAL IMPLANT
Gerald A. Niznick, Encino, Calif., assignor to Core-Vent Corporation, Encino, Calif.
Filed Jan. 28, 1987, Ser. No. 8,1
Int. Cl.⁴ A61C 8/00



passage in said endosseous dental implant anchoring means, abutment head means atop, and joined to said shaft means, said abutment head means being adapted to conform to the top surface of said endosseous dental implant anchoring means restriction means atop and joined to said abutment head means said restriction means comprising a region of reduced cross section having a size and shape sufficient to facilitate perferential bending at said restriction means when said coping insert is

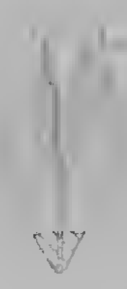
nperature of the thermoplastic, and
ction means, means for engaging
sis means

ETHOD FOR THE PREPARAT
FIXED DENTAL BRIDGE
obs, 18383 Van Rd., Livonia, Mich 481
Filed Nov. 7, 1986, Ser. No. 928,814
Int. Cl.⁴ A61C 11/00
-213 12 Claim

to the abutmer

cast one removable wax pontic the pontic
means for mounting the pontic on the occlusal
ontic being movable along said bar and rotatal
he longitudinal axis

4,758,163
ENDODONTIC MATERIAL AND METHOD
ldman, Worcester, Mass., assignor to Trustees
ollege, Medford, Mass.
ontinuation of Ser. No. 543,314, Oct. 19, 1983, Pat. No. 4,645,457. This application Jan. 14, 1987, Ser. No. 3,122
Int. Cl.⁴ A61C 5/00



g complete instructions for using the components contained therein said components consisting of sequentially in order of use at least one plugger to heat and remove gutta percha, at least one burr to prepare a site consisting of a bore and counterbore, at least one drill for final preparation of the bore, at least one post corresponding in size to the drill, a chelating reagent for flushing the site, an organic solvent reagent for flushing the site after the reagent flushing, a cementing medium consisting of an unfilled resin and catalyst for application to the site within which the post is seated, a spiral apparatus for the said application of cementing medium in the prepared site, and a composite resin to fabricate a core and a crown form around the post

HYBRID FLIGHT SIMULATOR
Luitzen de Vries, Amstelveen, Netherlands, assignor to Fokker B.V., Netherlands
Filed Apr. 22, 1986, Ser. No. 854,524
Claims priority, application Netherlands, May 3, 1985,

at least one element, the position of which is variable during the flight, such as a control member, for example a control column, with which a steering surface is coupled, an associated programmable servo-means coupled with the or each element, said means comprising

proportional to the desired mass of
(2) a first integrator connected with t
divider and

first
input
characterised in that
that the output of sa
analog/digital conve
the or each compute
digital/analog conver

4,758,165
TACTILE RELIEF DISPLAY DEVI
FOR MANUFACTURE T
Frans J. Tieman, and Kees Zeehuisen, both of Rockanj
lands, assignors to F. J. Tieman B.V., Rockanje, N
Filed Feb. 13, 1987, Ser. No. 14,47
Claims priority, application Netherlands,

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4,758,166

LED RADIO ANTENNA

Mich., and Earl S. Calc
rd Motor Company, De

ontinuation-in-p Apr. 7, 1986,
r. No. 915,833

ember containing an e
l equidistant between

4,758,167

ISTRIBUTION AND CONNECTION
I FOR USE ON AIRCRAFT

int Brice sous Foret, France, a
Boulogne Billancourt, France
Filed Dec. 4, 1986, Ser. No. 937,841
s priority, application France, Jun. 3, 1985, 85 08340
Int. Cl.⁴ H01R 25/00

listribution and connection syste
having a cabinet provided with
line receptable units, a pl

r portion of a respective one o
e one of a plurality of second
tacts being distributed in a regular pat
greater than said mutual spacing
y of stems each connected to one of said second
from said printed circuit board
in a direction opposite to said
ns being distributed in parallel

g of lengths of single wire insulated conductors
nd portions wrapped on said portions of rectan
tion of the stems of said pairs, and
uting connectors each having a plurality
tacts for mating engagement on terminal
lity of stems,
y of projection
aid stems, consti
g frame for the routing connectors and
ls receiving said single wire insulated

CONTACT DEVI LUG AND A
CORRESPONDING SOCKET

Erwin Awakowicz, Munich, and Peter Kleine, Fischen, both
Fed. Rep. of Germany, assignors to Siemens Aktiengesell
schaft, Berlin and Munich, Fed. Rep. of Germany
Filed Jul. 16, 1986, Ser. No. 886,084
Claims priority, application Fed. Rep. of Germany
1985, 3527142

nent mounted on said
nductor paths mounted on said
surface, and
ped plug receptacle mounted on said first surface,
g receptacle comprising a pair of legs and a cross
gs, each of said
tending through said c
lly connected to a respective one of said cond
, and a contact tongue extending from said cross
rds said recess and formed for receipt into s
espective female contact receptacle that has been inserted
through the recess

4,758,169

VALVE FOR RECIPROCATIN
COMBUSTION ENGINE

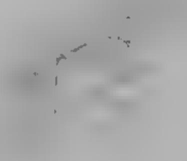
Anton Steiger, Illnau, Switzerland, assignor to
Limited, Winterthur, Switzerland
Filed Feb. 4, 1987, Ser. No. 11,2
Claims priority, application Switzerland,

having at least one nozzle in an end face thereof
g fuel into a combustion chamber, at least a
second nozzle in spaced longitudinal relation to said first
nozzle for injecting fuel into the combustion chamber, an
annular valve seat disposed between said nozzles, an annu
lar groove extending coaxially therein to receive a supply
of fuel and a fuel supply duct extending from said groove

valve needle movably mounted within said valve
coaxially of said groove with said groove extending
that half of the axial length of said needl
combustion chamber, said needle
sealingly seated on said valve seat
said end face and
duct in said valve
from said end face

Britt
Con

This application Jun. 9
Int. Cl.⁴ H01R



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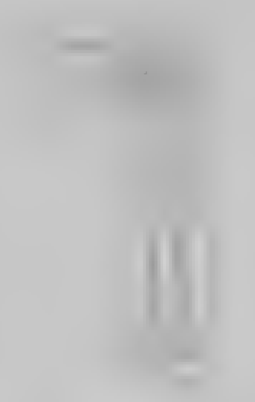
creen has been
primary insulatı
m has been partially removed
ductor of the cable.
ated by electrical stress control
er an end of said exposed portion
at least part of said exposed por-
primary insulation, and by electrical insulation
that extends in close conformity over said ex



ratus; and electr

ratus is engaged within the
ating body of the connec-

4,758,172
WER DISTRIBUTION BUSWAY SYST

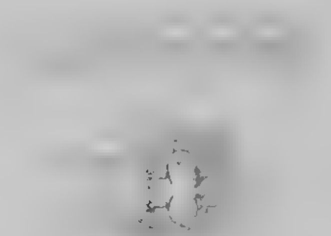
thony L. Richards, Southington, and Conrad R. Turmelle, Farmington, both of Conn., assignors to General Electric ompany, New York, N.Y.
Filed Oct. 13, 1987, Ser. No. 1
Int. Cl.⁴ H01R 25/14

said metal ta
formed contact

SOCKET ADAPTOR FOR FLUORESCENT LAMP

Donald Northrop, Glen Rock, N.J., assignor to Duro-Test Corporation, North Bergen, N.J.
Continuation of Ser. No. 615,787, May 31, 1984, abandoned
This application Apr. 11, 1986, Ser. No. 850,755

15 Claims



d length elongated fluorescent lamp having two opposed ends each with a pair of outwardly projecting electrical terminals thereon, said lamp to be mounted in a lamp fixture having a pair of spaced tombstone type sockets each having pairs of electrical contacts thereon mounted in opposition at the ends of a longitudinal axis of greater length than said reduced length lamp, the two elect cal terminals at each end of a fluorescent la into a respective tombstone socket by a r adaptor for converting rotating type installation of said la into plunger type installation and wherein the improvement comprises

e socket of a fi
using and the e
nto the electrical contacts of

d housing having a pair of aper

at an end of sa
substantial

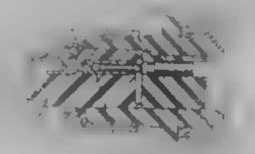
at said first end of said housing for making elec-
ontact with a respective lamp terminal as the lamp
rted therein toward said second housing end, each of
ectrical contact means being electrically connected
pective conductive pin at said second end of said

means for resiliently biasing said electrical contact means in a direction toward said first end of said housing against the direction of force of insertion of the pair of electrica erminals at an end of said reduced length lamp,

a spring loaded locking clip external of said housing fo attaching said adaptor to said tombstone socket, said cli having a first legg and a second leg disposed perpendicu to each other, one of said legs coupled to said housing
ther of said legs lying generally parallel
second end and spaced therefrom at a di
to receive the tombstone socket in t
er leg and said housing

4,758,174
NVIRONMENTALLY SEALED ELECTRICA CONNECTOR

Leonard H. Michaels, Warrenville, and Robert A. Miller, Wo dridge, both of Ill., assignors to Molex Incorporated, Lisle, Ill
Filed Jan. 20, 1987, Ser. No. 5,04

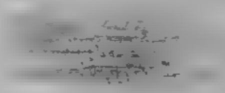


nd rigid outer shells, each including opposed
back ends and an aperture extending therebe-

cluding at least one aperture extending entirely
he mating and back ends for receiving an electr
luctive terminal, the back end of said first elasto-
rt being frictionally retained in the aperture of
uter shell, said mating end of said first insert
tionally but removably disposed i
nd outer shell, said first insert f
ing flange extending outwardly
sly around the fi
ng and back end
sert being compı
nd second outer shells, said second insert
d in the aperture of the second

AIRCRAFT GROU

Robert G. Didier, Santa Rosa, a both of Calif., assignors to B Mass
Filed Sep. 26, 1986, Ser.
Int. Cl.⁴ H01R



enclosed in a sheath
ight relationship to sa
a detachable nose sec
posed in said nose
nection to said a
ty of fixed cont

Shunji Abe, Yokohama, and Noriyuki Matsuoka Japan, assignors to Yamaichi Electric Mfg. Japan
Filed Jul. 7, 1987, Ser. N

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4,758,177

CTRICAL TEST PROBE

to Williams Instr.

87, Ser. No. 13,567

ward aperture
he transverse to

ated in the plane of sa
es when said second sleeve is in

y of centering means located pa

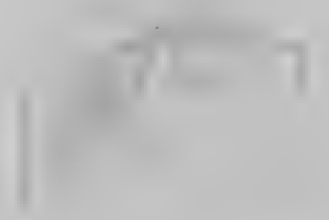
ace.
means being adapted to be moved
er-
rst

position for centering the

ty of latching means located partially in said rear-
apertures respectively of said first sleeve and par-
in said annular space.

rd

CLUSTER ASSEMBLY WITH LEAD SPACER
Henry H. Heimbrock, Cincinnati, Ohio, assignor to Stand
International Corporation, Salem, N.H
Continuation of Ser. No. 835,170, Mar. 3, 1986, abandoned. Th
application Aug. 24, 1987, Ser. No. 88,971
Int. Cl.⁴ H01R 13/56, 13/58



aid block having a surface normally lying adja
l housing and an opposite surface spaced from said

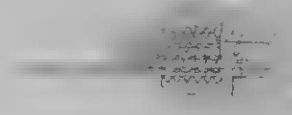
Laurence R. Klein, Torrance, and Jackson R. Ibling
both of Calif., assignors to The Zippertubing Comp
Angeles, Calif.
Filed Apr. 24, 1987, Ser. No. 42,380

U.S. Cl. 439—497

shie
co
a

havin

said ribbon cabling,
said rearward chamber including a pair of members ada
to bridge the opposite sides of said ribbon cabling
including means for clamping the same immo
between and retain the same captive in sa
hamber,



an elongated metallic grounding shoe having one
adapted to be inserted in the terminal end of said jack
contact with said shielding layer and
tion thereof positioned for pressu
metallic area of said housing halves
clamped in assembled position; and
means for securing said housing halves

4,758,180

MULTIPLE SIZE CONNECTOR PANEL AND
FOR CONSTRUCTING
David C. Wills, and Jay D. Atkinson, both of Cambridge, Ohi
assignors to NCR Corporation, Dayton, Ohio
Filed May 9, 1986, Ser. No. 861,219
t. Cl.⁴ H02G 3/08; H05K 5/04

panel portion forming a first knock-out plug
mounted in an interference fit with the panel member and
flush with the surface of the panel men
figuration of a first portion of a first e
connector formed by a line of weakening within the

having a width equal to

uous with the first knock-out plug, said
ut plug having a configuration corre-
second elongated electrical connector to

ELECTR
sugio Anbo; Katsuji Shimi
Tokyo, Japan, assignors
kyo, Japan
Filed Oct. 16,

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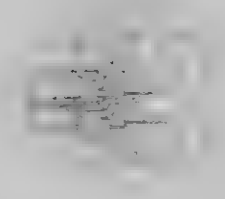
4,758,183

CTOR WITH A WIRE

r to AMP Inc

Feb 9, 1987, Ser. No. 12,525

application Japan, Mar. 31,



connector, comprising

mounted onto said hous

being movable from a

cking means in sai

and third conta

member openings and an integral compartment containin

a fuse device having a wall unitary with said ho

apertures extending from said compartment to

cond and third openings

ectrical contact member constrained with

ing and a second contact member comp

ng located in a respe

prising the ap

opposing wedg

attachment portion

wardly extending abo

respective aperture

MULTIPLE CONNECTOR

wald Reuss, Untereisbach, Fed. Rep. of Germany

Preh Elektrofeinmechanische Werke Jakob

GmbH & Co., Bad Neustadt, Fed. Rep. of Germ

Filed Dec. 11, 1985, Ser. No. 8

Claims priority, application Fed. Rep. of

ormed with said first housing

pport element being integrally

ormed with said second housing half-shell, that said two

support elements when closed define a sepa

between them, all of said chambers of both

e open, wherein all plug in op

e second support element serv

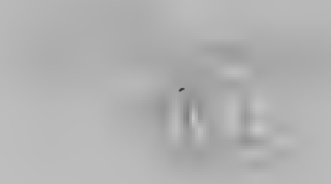
4,758,186

SIDE CONNECTING TERMINAL BLOCK

Jean-Pierre Barrinso, Buchy; Jean-Luc Blin, Bosc le Hard; Guy Dubuc, Fontaine le Bourg; Daniel Paulin, Bosc le Hard, and Alphonse Villenave, Canteleu, all of France,

Legrand, Limoges, France

Filed Jul. 25, 1986, Ser. No. 889,26



com

comprising a clamp

ined against axial movement within said

being free to rotate within said stirrup

mping screw having a head housed betw

lder integral w

terminal furth

Continu

Clai

Herbert Yates, Montreal, Canada, as

ments, Ltd., Beaconsfield, Canada

Filed Apr. 17, 1987, Ser

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said base member,
ıg a first end and a second end, said fir
rod member being pivotally connected to said
w member at a third pivot point, said second end
rod member being pivotally connected to said
mber at a fourth pivot point,
ıember between said sec
member

NECTOR
Inc. Wis., assi

means including a cavity for receiving said spark
rminal without distortion of said receiving means

spark plug terminal by means of a pull
direction substantially different than the d
push-on motion, and said terminal grip m
e of returning to its original position so t
r is reusable and provides a secure elect
to said spark plug terminal subsequent to disengage
from said spark plug terminal using said pull off mo

4,758,190

DRAIN SYSTEM FOR OUTBOARD MOTOR COWLING

Henry J. Van Vuren, Redgranite, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Jul. 29, 1987, Ser. No. 79

A marine propulsion drive including an upper unit having
wling defining an engine compartment for housing an
nternal comb
portion wit
peller and having a dri
the engine and propeller, a throttle
tively movable between a full thrott
full throttle position, and a drain assembly for dra
from the engine compartment, said drain assembly co
valve means actuatable in response to movement of th

ATER SKI BINDING

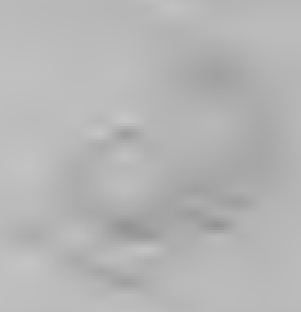
lothell; Donald B. Gillis, I
Patrick J. Connelly, Freeland, all of Wash., assignors t Connelly Skis, Inc., Lynnwood, Wash.

Continuation-in-part of Ser. No. 832,455, Feb. 21, 1986, Pat. No. 4,738,646. This application Sep. 24, 1986, Ser. No.

Int. Cl.⁴ A63C 5/00

U.S. Cl. 441—70

mprising



4,758,192

BINDING AND METH

Marks, 7 Haf
Filed Mar

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cup housing for retaining paper clips, lines t

at le

ILDING UNITS

ssignor to 3 W Designers

ing a three dimensional configuration formed of an elas
foam composition, and including means for connecti
block to one or more other blocks of similar constructi
means comprising a plurality of integrally formed flexible
protuberances and springy self-closing cellular receptacles
present on all surfaces of all said blocks, said protuberances
receptacles clinging thereto when
blocks are forceably placed in

R MAKING THREE-DIMENS
ED OF GEOMETRIC POINT
AND PLANES

ng-Hsien Wang, P.O. Box 10160, Taipei, Taiwan
Filed Mar. 27, 1987, Ser. No 30,976

making three dimensi

ans comprising a central disk
aving two sides and a female socked formed on
one side and at a center thereof, a male scr
from the other side and at the center therec
l central disk portion by a neck port
to be removably engageable w
f another identical circular disk n
ing extending on said two sides of said central disk por
tion and being concentric to the center thereof, a middle
ring extending on said two sides of said central disk por-
tion and bei
inner ring

nd being equally spaced one on
ar forming respective interme
y said longitudinal bars, said centra
a pair of side clamps disposed one on ea
f said link means, each of said clamps h
end thereof, and an outer notch
er notch sequentially f
pted to be removably eng
g, middle ring, inner ring, neck por
onnector of said circular disk means, and
emovably engageable with a central bar, a
nd a longitudina
nk means, and

Y WINDMILL AND NOISE MAKER

Hop Lee, 2455 24th Ave., San Francisco, Calif. 94121
Filed Oct. 29, 1986, Ser. No. 924,914
Int. Cl.⁴ A63H *5/00, 33/40*

U. S. Cl. 446—213

1 A toy windmill and noise maker device compri
bstantially square or rectangular frame, said fr
members, each

and having two ends which are of un
ction and which are larger in di
ing portion of the band and the

least one paddle ca
a predetermined pat

the substantially
l one side of sai

the device is held by the handle and when the sh
rotated by the windmill, causing the drumsticks to s
the drum, the device is substantially balanced at leas
drumstick has a neck which is of a smaller cross-sec
than adjacent portions of the drumstick, wherein
rubber band defines a hole therein into which the neck of
the drumstick fits snugly and wherein the neck is short so
that when such drumstick is held by inserting the drum-

4,758,19

BLE TOY WITH PLURAL BLADDE
AND VALVE MEANS

nzo Ishiwa, Tokyo, Japan, assignor to Ringstor
Tokyo, Japan

Filed Dec. 23, 1986, Ser. No. 945,86

Claims priority, application Japan, Sep. 18, 1986,
3176[U]; Sep. 18, 1986, 61-143177[U]; Oct. 28, 1986,
5343[U]

Int. Cl.⁴ A63H *3/06*; F16K *15/16*

. Cl. 446—220 4 Cla

A gas-inflatable bladder toy, comprising a pair of flexi
latable bladders disposed
der having an inflated
bladder, and the inner bladder
of foaming agents which chemically rea
produce a gas, rupturable means separa
agents from each other, said separating m
be ruptured by man
a user to mix the
expand together u

Blaise L. McArdle, P.O. Box 57
Continuation of Ser. No. 858,686, M

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ioned in said enlarges cavity, said
is received in said sleeve and cap-

4,758,201

FEED BELT DRIVE IN COIN HANDI

Masamichi Ozeki, Ashikaga, Japan, assignor to
Machines Co., Ltd., Tokyo, Japan
Filed Feb. 17, 1987, Ser. No. 15,068
Claims priority, application Japan, Feb. 27
Int. Cl.⁴ G07D 9/08

INT WITH BEARING
RAL BEARING SURFA

Bay Village, and Ralph E. S
both of Ohio, assignors to Walter J. Macing, Bay Villa
Ohio
Continuation-in-part of Ser. No. 625,303, Jun. 27, 1984,
abandoned. This application
Int. Cl.⁴ F16

b. a driv
c. a uni

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g shaft and a d

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rical transfer surface in co
nal wall of said bearing men
bearing surfaces, said cylindri
ing surfaces being mo

bearing member

and said bearing m

IETAL CRUCIFORM JOURNAL FORGING AN
METHOD OF MAKING SUCH A FORGING

Lee Breazeale; Frank A. Jones, both of Memphis, Ten
Andrew G. Torok, Shreveport, La., assignors to
prises, Inc., Memphis, Tenn.
Continuation of Ser. No. 433,260, Oct. 7, 198
4,580,432. This application Oct. 9, 1985
Int. Cl.⁴ F16D 3/

substantially

4,758,204

TRANSMISSION SYSTEM

Lindgren, Vikmanshyttan, Sweden, assign
ics AB, Stockholm, Sweden
Filed Oct. 23, 1987, Ser. No. 112,003

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PE FOR OIL

plication Japan
Int. Cl.4 F16

ent of inertia of the slack side por

1986, Ser. No.

4,758,208
TOMATIC BELT TENSIONER FOR VEHICLE
COMBINED STARTER-GENERATOR
Bartos, Davisburg, and Lubomyr O. He
th of Mich., assignors to General Motors

Jul. 13, 1987 S

nsioner for auton
belt in each mo

tive, and,
a latch activation means movable with said l

ma, Japan, assig
Tokyo, Japan

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[illegible]

[illegible] VING BELT
[illegible] hima, both of Hy[illegible]

[illegible]

[illegible] inagawa, Japan
[illegible] led Sep. 19, 1986, Ser. No. 909,395

[illegible]

[illegible] VICKETING BAG MACHINE

[illegible] nt. Cl.⁴ B31B [illegible] 7 Claims

[illegible] ng apparatus [illegible]

[illegible] tegra [illegible] ir of adjacent [illegible]

[illegible] Paris, France, assignor [illegible]

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...J., assignors to Alcon Laboratories, Inc., Fort

...d Sep. 26, 1985, Ser. No. 780,6...
Int. Cl.4 A61M 37/00

...and tip being adapted t...
...ssed shape when the t...

Continuation-in-part of...
...bandoned. This applicati...

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Sarah G. H. Par

N. PARTICULARLY FOR

iled Apr. 20, 1987, Ser. No. 40,904

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is mounted in said housing and

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e an inner extension p

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4,758,231

HIELDED SAFETY SYRING

Filed Apr. 27, 1987, Ser. No. 43,042

Int. Cl.^{4} A61M 5/32

tially

therethrough, a distal end of

longitudinally outwardly beyond the

nd bore at said proximal open e

CREAM APPLICATOI

n R. Phillips, Killara; Robert H. Lodge, Deewhy
Bunyan, Mona Vale, all of Australia, assignors t
ps TPY. Limited, New South Wales, Australia
Filed Apr. 16, 1987, Ser. No. 39,623
Claims priority, application Austr
Int. Cl.^{4} A61M

4,758,234

HIGH VISCOSITY FLUID DELIVERY SYS

man Orentreich, 140 E. 72nd St., New York, N
nd Joseph H. Vogelman, Roslyn, N.Y., assignors t
Orentreich, New York, N.Y.

Int. Cl.^{4} A61M 5/245

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AN INFUSION KI

id one end of

otatable by said

land, both of Calif., assignors to Alcon Laboratories, Inc., Ft
Worth, Tex.

Continuation of Ser. No. 907,589, Sep. 18, 1986, abandoned which is a continuation-in-part of Ser. No. 780,073, Sep. 25, 1985, abandoned. This application Aug. 6, 1987, Ser. No. 83,904

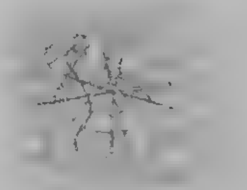
through said side

4,758,239

BREATHABLE BARRIER

nwoody, and Daniel K

gnors to Kimberly-Clark



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Chemical Company, Limited, Osaka, Japan
ntinuation-in-part of Ser. No. 702,583, Feb. 19,
doned. The application Feb. 24, 1987, Ser. No. 18 781
ns priority, application Japan, Feb. 24, 1984, 59-34

urg, and William C. Ki
gnors to Milliken Researc

lay 27, 1986, Ser. No. 1
Int. Cl.⁴ C09B 69, 1

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weight of from about 132 to abou
teger of from 1 to about 12, and

SO₃H, —SO₃R₁ phosphate, phosphonite

ali metal by Jo

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rs to Waagner-I
714,248, Mar
Is application Nov. 18, 1986, Ser. No. 931,992
priority, application Austria, Mar. 22, 1984, 962
Int. Cl.⁴ C10J 3/

ROCESS REDUCTION OF CA
URCE TO FORM CARBON M
I, Paris, and Francois Prudhon, Versailles
nors to Rhone-Poulenc Chimie de Base, C

combustion of a carb
gen in a first zone A

4,758,25
ATION I

1. A process for

4,758,251
SEPARATION OF GASES THROUGH GAS
ENRICHMENT MEMBRANE COMPOSITES
Raymond J. Swedo, Mt. Prospect, and Paul R. Kurek
burg, both of Ill., assignors to Allied-Signal Inc., M
N.J.

Int. Cl.⁴ B01D

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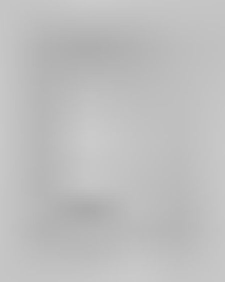
4,758,254

1987, Ser. No. 116,82

ation Japan, Nov. 1



4,758,256

ITH REMOVABLE BO

4,758,257

IN METHOD A

, Gates, Mendham, N.J., and John Ma

l, assignors to The BOC Group plc,

4,758,258

PROCESS FOR RECOVERING HELI

NATURAL GAS STREAM

Keith Mitchell, Shawnee; Donald N. Reed, and

Rodkey, both of Edmond, all of Okla., assign

McGee Corporation, Ok

Filed May 6

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1988
UMI

14,415, Oct. 2, 1986, abandoned
part of Ser. No. 812,105, Dec. 23,
s application Aug. 10, 1987, Ser. N
nt. Cl.⁴ C03B 37/022

IAMMONIUM PHOSPHATE PROD
RE PIPE REAC
on R. Parker, Florence, and Barry W. Curt
Ala., assignors to Tennessee Valley Authority, Mus
Al.
Filed Nov. 30, 1987, Ser. No. 127,029

FOR PRODUCI
NULATED SLAG SAND FROM BLAST FUR
SLAG
ter Geropp, Winsdorf-Obersdorf; Karl Wiedemer, Seig
nd Konrad Muller, Freudenberg-Overfischbach, all of F
Germany, assignors to AJO Stahlbau GmbH & C
denberg-Oberfischbach, Fed. Rep. of Germany
T DE86/00124, § 371 Date Dec. 2, 1986, § 102
86, PCT Pub. No. WO86/05818, PCT P
CT Filed Mar. 22, 1986, Ser. No. 4,475
riority, application Fed. Rep. of Germa

roved process for preparing gra

to about 30 p

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D THEIR USE FOR
ABLE PLANT GROWTH

ner Becker, Bad Durkheim; Dieter Jahn, Edingen-Neckarhausen; Ulrich Schirmer, Heidelberg; Michael Keil, Freinsheim; Bruno Wuerzer, Otterstadt, and Norbert Meyer, Ladenburg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

ision of Ser. No. 708,933, Mar. 6, 1985, Pat. No. 4,650,513
This application Nov. 12, 1986, Ser. No. 929,340
Claims priority, application Fed. Rep. of Germany, Ma
14, 3408153; Mar. 22, 1984, 3410492

ere R^1 is C_1–C_4-alkyl, R^2 is C_1
bstituted or halogen-substituted
lkoxycarbonyl and X is a penta
tituted by C_1–C_4-alkylthio.
mbatting the growth of unwa
ts or the area to be ke
treated with a herbic

4,758,266
OF HIGH SURI
POWDER

Eddie C. J. Choo, Arvada, Colo., assignor to
wich, Conn.

In the proces kel powder b
lrogen reduct al nickel sulfat

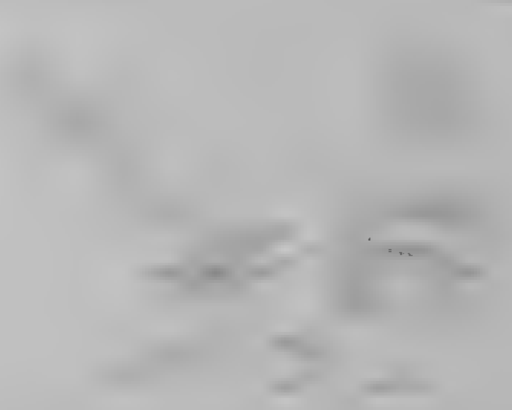
ormald
lehyde

4,758,267
TICLE AND FIBER
MICROGRAVITY

George W. Webb, Del Mar, Calif., assignor to E
Laboratories, Inc., San Diego, Calif.
Filed Dec. 23, 1985, Ser. No. 811,99
Int. Cl.⁴ B23
5—0.5 B

4,758,268
METHOD AND APPARATUS FOR RECLAIMING METAL
ALUES FROM ELECTRIC ARC FURNACE FLUE DUST
DGE AND RENDERING RESIDUAL SOLI
ECYCLABLE OR NON-HAZARDOUS

hop, Ruidoso, N. Mex.; N. Edward Botti
d Norman L. Kotraba, Tega Cay, S.C., as
nology, Inc., Dallas, Tex.
Dec. 23, 1986, Ser. No. 946,550
Int. Cl.⁴ C22B 7/08



and said mixer for introducing said wa
arbonaceous material, and an organic bi

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e group consisting of M

4,758,273

DISPERSION STRENGTHENED ALUMINUM ALLOYS

Paul S. Gilman, Suffern; Stephen J. Donachie, New Windsc
N.Y., and Robert D. Schelleng, Ba
gnors to INCO Alloys International, I

tinuation-in-part of Ser. No. 664,058, Oct. 23, 1984, and
tinuation-in-part of Ser. No. 664,241, Oct. 24, 1984 This
pplication Aug. 21, 1986, Ser. No 898,57
Int. Cl.⁴ C22C 21

, 4-24-3-701, Asagayakita, Suginami-ku,
ura, No. 3-21-6, Kamimeguro, Meguro-ku,
asuhiro Kumei, Tokyo; Osamu Okuno, Narashino;
Nakano, Chiba, and Yoshinobu Yamamura, Kawa
f Japan, assignors to Atsushige Sato; Ishi Miura a
al Industrial Corp., all of Tokyo, Japan

th of Painted P

Filed May 2

4,758,275

MAGNETIC FLUID

gawa; Mamoru Soga, O
taru Shimotsuma, Ibara
ushita Electric Industr

Dec. 15, 1981, S
pplication Jan

poration, Woodland Hills, Calif.

Division of Ser. No. 803,038, Nov. 27, 1985, abandoned, whicl
f Ser. No. 565,124, Dec. 23, 1983, abandoned
livision of Ser. No. 394,153, Jul. 1, 1982, abandoned,
inuation-in-part of Ser. No. 507,918, Jun. 27, 1983,
Pat. No. 4,484,984, which is a continuation of Ser. No. 331,605,
Dec. 17, 1981, Pat. No. 4,390,369. This application Sep. 16.

nt. Cl.⁴ C09

ichael J
Flemsbor
Chemical
ontinuation-in
andoned. This

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mann, Mels, Switzerland, and Peter Niiesch, Balzers,
stein, assignors to Balzers Aktiengesellschaft, Liech-

Filed Jan. 13, 1987, Ser. No. 2,967
riority, application Switzerland, Jan

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FECTIVE COATI
Ferrara, and Larry A. Fellows, all of
gnors to International Minerals &

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source selected from the group

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of about 1:1

PROCESS FOR DRY CATIONIZATION OF GALACTOMANNANS

Reinhard Stober, Hasselroth; Wolfgang Fischer, Kahl, and M
ll of Fed. Rep. of Germany, assignors
haft, Frankfort, Fed. Rep. of Ger

Filed Dec. 29, 1986, Ser. No. 947,180
laims priority, application Fed. Rep. of German
1986, 3604795
Int. Cl.
U.S. Cl. 127—34

ra, Kitamoto; M
miya; Naoki Ol
ll of Japan.

7—36
ss for preparing L-rhamnose, which c

tracted with the rhamnan sulfate from
hydrolyzing said extract by adding acid t

y a hydrolyza

4,758,284
ARATUS RECEPTACL
ETHOD OF USING SAME
, 10161 Royal Ann Ave., San

elongated
and at least

al opening;

Oct. 14, 1986, Ser. No. 918,08

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KING SAME
assignor to Talley Ind

1987, Ser. No

1987, Ser. No. 59,534

based fuel com

4,758,289
BLASTING AGENT IN MICROCAPSULE

running blasting

n, Ohio, assignor

This application Ju

tting pad adap

RATUS FOR AUTOMATICALLY
APPLYING LINING MATERIAL TO LARGE-AREA
WALL SURFACES

Gerald Fechner, Seesen; Rolf Meyer, and Gerhard Porrmann both of Bockenem, all of Fed. Rep. of Germany, assignors to Haw Harzer Apparatewerke KG, Schwemann & Althoff, Bockenem, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 744,135, Jun. 12, 1985, Pat. No. 4,664,741. This application Dec. 22, 198

Claims priority, application Fed. Rep. o

984, 3422116

The portion of the term of this patent subsequent

2004, has been disclaimed

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applied webs

POOLS

lliam H. Baker, 30 Honeysuckle Woods, Clover, S.C.

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Apr. 3, 1987, Ser. No. 33,567
ipplication Japan, Apr. 8, 1986 61

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12615 Boulder St., Boulder C

un. 20, 1983, Ser. No. 505,888
Int. Cl.4 B29D 17/

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te covering,
turning the

4,758,297
HOT PIN LAMINATED FABRIC
Elio Calligarich, Milan, Italy, assignor to FMC
Chicago, Ill
Filed Jun. 3, 1986, Ser. No. 870,20
Int. Cl.4 B32B 3/

rmoplastic film

aminate until a final n
said heated pins are rot

ster and said perforations are elongated in
travel of the laminate through said bite

4,758,298
FORMING M
BUNDLE
k S. Goorsky, Niles; Mark B. Koch, Mt. Prospect, an
ichard C. Murray, Jr., Palatine, all of Ill., assignors
etramed, Inc., Newport Beach, Calif.
No. 779,342, Sep. 23, 1986, Pat. No
s application Dec. 1, 1986, Ser. No. 936,1
Int. Cl.4 B29D 11/00 B05D 5
—29

a plurality of sensors, each sensor including

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[illegible] g, Lund, Swe-

[illegible] on Japan, Sep
[illegible] Cl.⁴ B26D 5/[illegible]

[illegible] a side surface of the article

4,758,302

HEATING APPARATUS FOR THERMOPLASTIC PI[illegible]

[illegible]nn Hannover, Wilmington, Del., assignor to Du Pont
Limited, Stevenage, England
Filed Apr. 9, 1987, Ser. No. 34,037

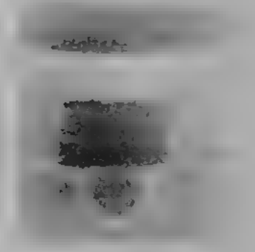
Int. Cl.⁴ H05B 3/[illegible]

[illegible] nected to the radiant heating elem[illegible] tively.

HAND CRANE [illegible]

Gordon E. Sl[illegible]stko, Du[illegible]

[illegible], Ser. No. 901,3[illegible]
[illegible]4C 3/[illegible]



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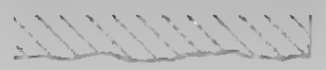

M

ictor C. Humberstone, Sta
and Keith Gardner, Foxton, all of England, assignors
mon Data Systems N.V., Curacao, Netherlands

4,758,308
OR MONITORING CONTAM
TOR IN A PAPER PULP
29 Palisades Dr., Appleto
Mar. 5, 1985, Ser. No. 7

monitoring a stock stream of paper pulp a
tinuously monitoring contaminanats in s

ersal flow meat
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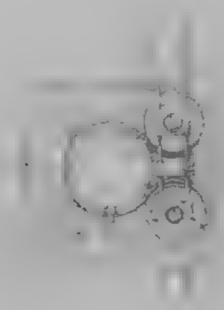
hansson, Blomstermala, Sweden, assignor to Norr
B, Halmstad, Sweden
PCT/SE84/00352, § 371 Date Jun. 20, 1985, § 102
Date Jun. 20, 1985, PCT Pub. No. WO
Date May 9, 1985
PCT Filed Oct. 24, 1984, Ser. N
priority, application Sweden, Oct. 25, 1983, 83058
Int. Cl.⁴ D21F 1/10, 7/08
62—273 6 Cla

YPE PRESSING APPARATUS
Miller, 8816 Warren Dr. N.W., Gig Harbor, Wash.

tinuation-in-part of Ser. No. 849,931, Apr. 8, 1986, Pat. No
4,710,271. This application Sep. 8, 1987, Ser. No. 94,137
aims priority, application PCT Int'l Appl., Mar. 31, 19
US87/00764; Canada, Apr. 2, 1987, 533655
Int. Cl.⁴ D21F 3/00, 5/02 F26B
Cl. 162—358



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STRI
Giorgio Pagani, Milan; Giuseppe I
Grassini, Busto Arsizio, all of Italy
S.p.A., Milan, Italy
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1985, abandoned, which is a c
Nov. 7, 1983, abandoned, which is a continuat
No. 468,888, Feb. 23, 1983, This ap
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ıBLE MATERIALS URANIUM AND
ıND FOR THE IMPROVED SEPARAT
HE FISSIONABLE MATERIALS

schmieder, Karlsruhe; Hans J. Bleyl, Eggenstei
ldshafen; Zdenek Kolarik, Karslruhe, and Klaus Ebert,
elberg, all of Fed. Rep. of Germany, assignors to Kernfor-
gszentrum Kalrsuhe GmbH, Fed. Rep. of Germany
Filed Dec. 24, 1984, Ser. No. 685,660
s priority, application Fed. Rep. of Germany Dec. 22

er from the

ıc phase to a second wash for sepa
mum with a second aqueous wash
gh concentration of recycled product
is about 4 molar in HNO_3, at an

rat-
tion
concentration of recycled product uranyl
ı is about 1 molar in HNO_3, at an elevated

AMORPHOUS FE-C R-P ELECTROPLATI

Patrick K. Ng, Rochester Hills, Mich., assigno
Motors Corporation, Detroit, Mich.
Filed Jun. 29, 1987, Ser. No. (
Int. Cl.⁴ C25D 3/56

PROCESS FOR THE ELECTROSY
TERTIARY ARYLALKYLPHOSI

ıde Folest, Creteil, and Jacques Perichon, Sur Org
France, assignors to Societe Nationale des Poudres
fs, Paris, France
Filed Nov. 9,
priority, applicat
Int. (

U.S. Cl. 204—59 R

1. Process for the synthesis of tertiary arylalkyl

of reducing metals and t

ALUMINUM-LITHIUM SCRAP RECOV

Donald L. Stewart, Jr., Hempfield Township, W
County, and Jan H. L. VanLinden, Hampton Tow
gheny County, both of Pa., assignors to Aluminum Compa
of America, Pittsburgh, Pa.
Filed Apr. 20, 1987, Ser. No. 40,133
Int. Cl.⁴ C25(

34—67

Kaisha, Fukuoka
Filed Apr. 22, 1

Filed Nov. 20

anode and an upper cathode compa
ally horizontal porous carbon cat

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NS AND APPARATUS FOR SEPARAT D PARTICLES OR MACROMOLECULE ION BY ELECTROFILTRATION

Ramonville Saint-Agne; Pierre Aimar, ouse, and Jean Mahenc, Lacroix-Falgarde, all of France, assignors to Centre National de la Recherche Scientifique (C.N.R.S.), Anatole, France

No. PCT/FR86/00199, § 371 Date Jan. 27, 1987, § 102 987, PCT Pub. No. WO86/07280, PCT I

ETHOD OF SPUTTERED DEPOSITING DMIUM-SILICON-NITROGEN RESISTOR

etherlands, assignor to

ation of Ser. No. 594,636, Mar. 29, 1984, abandoned. a division of Ser. No. 516,822, Jul. 25, 1983, Pat. No 12. This application Jun. 3, 1985, Ser. No. 740,686

tacarlo Sioli, Cernobbio, Italy, assignor to M Switzerland

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tes being boun

d frame, and an outlet port for d ito said cavity through a discharge

e in said frame ket in the for

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lforshire, and Hugh f United Kingdom, assignors to Genetics Internat ambridge, Mass.

Filed May 7, 1984, Ser. No. 607,698

application United Kingdom, May 5, 1983 983, 8312265; Jun. 9, 1983, 8323801, Jun. 9, 29, 1984, 8405262; Feb. 29, 1984, 8405263

Japan

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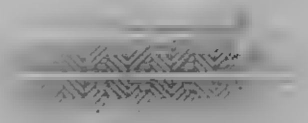

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dd, Bartlesville, Okla., assi

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LOW-SULFUR FUELS FROM COAL

Kruse, Champaign; Neil F. Shimp, Urbana
Helfinstine, and Jimmie D. Cooper, both of Champaign, all of Ill., assignors to Board of Trustees, University of Illinois, Urbana, Ill

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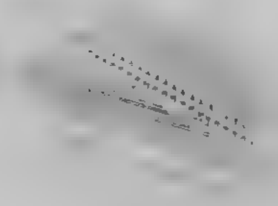
22, 1984, abandoned
No. 884,861



edewald; Michael Panse, Bad Homberg,
Melsungen; Heinrich Eckel, Rotenburg, and
Baunatal, all of Fed. Rep. of Germany, assign

4,758,337

ER FOR FILTERING HUMAN BLOOD,
SPECIALLY IN AN EXTRACORPOREAL
CIRCULATORY

nz Gerhard Kohn, Dransfeld, an

r. No. 928,059

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1987, Ser. No. 43,762

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ril, both of Switzerland, assignors to Labomatt

ril, Switzerland

Filed Oct. 19, 1987, Ser. No. 110,220

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ring and the threaded ring in such a fashion th

dy at the end of the column, so as

in the axial direction with respect

MEMBRANE S

Tanner, San Ramon

mpany, Midland, M

Filed Apr. 20

fiber length .

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Manecke, Berlin, Beate Pfannenmuller, Freiburg; Kl

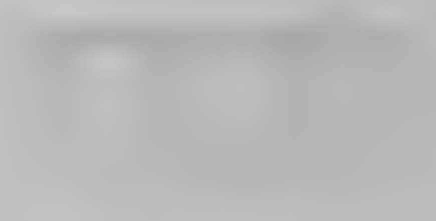
Frankfurt, and Helmut Ringsdorf, Mainz, all of Fed

ors to Klaus Heckmann, Regensburg.

r. No. 351,286, Feb. 22, 1982, abandon

ion Apr. 9, 1984, Ser. No

pplication Fed. Rep. of



MEMBRANE

su; Hideo Fujimaki, Shiga

and Masaru Kurihara, Ohtsu, a

Toray Industries, Inc., Tokyo, Japan

Filed Sep. 11, 1986, Ser. No. 906,175

laims priority, application Japan, Sep. 20, 1985

6, 1985, 60-247139

Int. Cl.⁴ B01D 13/04

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. and Helen L. Quinby, Cambridge,
nited States of America as represented
tes Department of Energy, Washi
-part of Ser. No. 834,6

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R THE REM

urst, Ill., assignor t OP Inc

r. No. 791,646, Oct. 28, 1985, Pat. No.
application Oct. 20, 1986, Ser. No. 920,404
e term of this patent subsequent to Apr. 28,
004, has been disclaimed
Cl.⁴ C02F 1/28

'fenninger, Lupsingen, both of
Geigy Corporation, Ardsley,

Filed Jan. 30, 1987, Ser. No. 8,812
riority, application Switzerland, Feb. 7, 1986, 483/86
t. Cl.⁴ B01D 13/00; C02F 1/44

process for purifying dye-containing waste

coarse filtering to remove suspen
temperature to a value between 1

e wastewater to an ult
tain a permeate and a

Ma : Ka
Shinohara, Tokyo; Hiroy
gure, Tokyo, all of Japan,
Tokyo, Japan
l Jan. 27, 1986, Ser. No. 822,765
y, application Japan, Feb. 1, 1985
b. 1, 1985, 60-16668; Apr. 30, 1985, 60-91
Int. Cl.⁴ B01D 37/00

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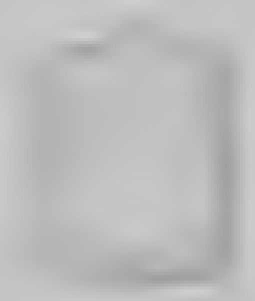
[illegible] 1986, Ser. No. 940,960 [illegible] n Fed. Rep. of Germa [illegible]

[illegible] ger Aktiengesellschaft, Leverkus [illegible]

[illegible] r. No. 872,991 [illegible] Rep. of Germa [illegible]



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n part of Ser. No. 23,8[illegible]
is a continuation-in-pai

l Sep. 24, 1986, Ser. No. 910,9[illegible]
ication France, Oct. 3, 198[illegible]

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R LOW PHOSPHORUS

hio, assignor to

Mar. 18, 1986, S[illegible]
Int. Cl.⁴ C10N[illegible]

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R NH, wher[illegible]

odney L. Sung
Ronald L. O[illegible]

4,758,364
MISSION [illegible]

s priority, application Japan, Jun. 25, 1984
Int. Cl.⁴ C10M 157/04

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Int. Cl.⁴ C11D

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OUS PRODUCTION OF TRANSPARENT S
Phoenix, Ariz.; I
chard A. Scott, I

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, Walter Einck
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l, Telford, Sur
England, assignors to The Britisl
London, England
tion of Ser. No. 72? 699, Apr. 26, 1
ser. No. 70,643
nited Kingdom.

COMPOSITIONS
Hajime Hirota, Megurohon; Hidekazu Ogino, Funaba
Hideko Ishido, Tokyo; Yutaka Shibata, Yamato; Sah
and Chizuru Fukami, Ichikawa, al
Corporation, Tokyo, Japan
Nov. 18, 1986, Ser. No. 931,810
application Japan, Nov. 28, 1985, 60-267
271258; Dec. 12, 1985, 60-279934; Dec

and p represents

US PHASE STABLE
CLEANSERS CONTAI
lding and Richard M
to The Proctor & Gamble Company, Cin
Ser. No. 779,?38, Sep. 24, 1985, abandoned. 1
application Apr. 24, 1987, Ser. N
Int. Cl.⁴ C11D 1/72

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about 1% of a higl
ymeric thickener havi

NT COMPOSITI
AMIDE SOFTENING AGI
Denijs Westrem; Alfred Bus
of Belgium, and Frederick E. H
astle upon Tyne, United Kingdom, assignors to T
& Gamble Company, Cincinnati, Ohio
Filed Apr. 20, 1987, Ser. No. 40,43
y, application United Kingd
11D 1/62 [illegible]

ian B. Alston,
urg, Va., assign
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ama, Japan, ass
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[illegible]-1,5,7,22-TETRAEN-3β-OL AND ITS USE AS [illegible]MEDIATE FOR 1α-HYDROXY VITAMIN D [illegible]ibana, Kawagoe, Japan, assignor to Nisshin [illegible] Co., Ltd., Japan

Filed Nov. 4, 1987, Ser. No. 117,46[illegible]

priority, applicat[illegible]

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ID COMPOUNDS AND
IF PREPARATION

Gerald K. McEwen, Ashland, Va., and Donald I
Midland, Mich., assignors to The Dow Chemi
Midland, Mich.

Filed Aug. 7, 1987, S

Int. Cl.⁴ C07F

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which are bonded two ethyle

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E HEAT EXCHANGER

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Sep. 14, 1987, Ser. No. 95,699
application Fed. Rep. of Germ

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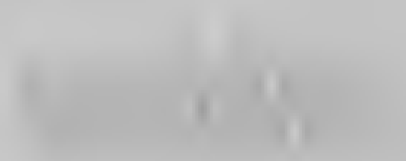

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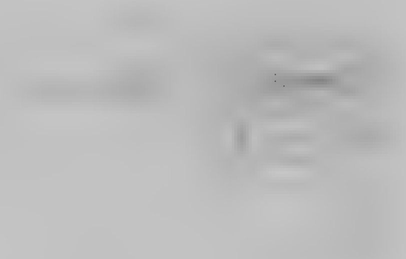

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Feb. 25, 1987, [illegible]

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Oct. 3, 1986, Ser. No. 914,952

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o, Ohio

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ORIENTED POL

Guenther Crass, Taunusst
tmar Bothe, Mainz-Gons
Finthen, all of Fed. Rep. of Germany, assignors to Hoechst
Aktiengesellschaft, Franfurt am Main, Fed. Rep. of Germany
Filed Sep. 9, 1986, Ser. No. 905,190
application Fed

R THE CONTINUOUS I
ELONGATE HOLLOW BODIES OR INNER LININGS
FOR SUCH HOLLOW BODIES

lhelm Schreiner, and Wolfgang Grimm, both of Leverkusen,
rmany, assignors to Bayer Aktiengesellschaft,
d. Rep. of Germany
No. 741,517, Jun. 5, 1985, Pat. No. 4,689,003.
lication Jun. 16, 1987, Ser. No. 62,935
y, application Fed. Rep. of Germany, Jun

METHOD OF MANUFACTURE I
J. Sparapany, Allegany, N.Y.; Lewis Er
No. 916,30

THIN FILMS

shihiro Hamakawa, 17-4, Minamihanayashiki 3-cho
Kawanishi-shi, Hyogo-ken, and Hideyuki Takakura, Osak
f Japan, assignors to Yoshihiro Hamakawa, Hyogo,
Ser. No. 732,855, May 10, 1985, which is a division
Oct. 18, 1983, al
7, 1986, Ser. N
plication Japa

illiam R. Dunnav
and Richard F
Ashland Oil, Inc

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Udo Frerichs, Langenhagen;
and Carsten Boltze, Barsing
nany, assignors to Contin
ed. Rep. of Germany
Ser. No. 798,15

4,758,404

Claims priority

South Windsor, and Adolph

Lito, Nagoya, Japan, assignor to Daid
td., Nagoya, Japan

Claims priority

RESISTANT ALUM
uper, Station Siggenthal, Switz
Brown Boveri AG, Baden, Switzerland
Filed Aug. 12, 1987, Ser. No. 84,184
ms priority, application Switzerland, Au

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chlangenbad-Bärstadt; Klaus He
mut Kainer, Wiesbaden, and He
im all of Fed. Rep. of Germany

Didier-Werke

Claims priority, application Fe
985, 3532577

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ADDITION OF METALIC IONS

Floreancig, Saint Genis Laval, France,

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p. Mich., assignor to F

f Ser. No. 375,205, Ma

m of Tex., assign

86, Ser. No. 947,7

26,40

Int. Cl.⁴ C01B 17

removal of hydrogen

SULFUR-CONTAINING MATERIAL

Foo, Flossmoor, and John A. Jaecker, Homewood, both o
l., assignors to Union Carbide Corporation, Danbury, Con
Division of Ser. No. 692,448, Jan. 16, 1985, Pat. No. 4,642
which is a division of Ser. No. 494,604, May 16, 1983, P
4,495,304, which is a continuation-in-part of Ser. No. 301,
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No. 173,315, Jul. 29, 1980, abandoned. This application Dec. 11
1986, Ser. No. 940,619
Int. Cl.⁴ C01B 17/

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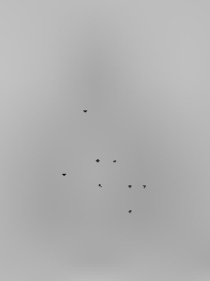
4,758,419

h M. Flanigen, White Plains, all of N.Y., a
on Carbide Corporation, Danbury, Conn.
Filed Apr. 13, 1984, Ser. No. 600,18



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…L EXTRACTION OF POLY…
…IC COMPOUNDS FROM POR…
…M. Knowles, Martinez, Calif., assignor to The
…l Company, Midland, Mich.
Filed Jul. 14, 1986, Ser. No. 885,36…
…Cl.⁴ C01B 7/00; B01D …
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wherein the
form, carbon tetrachloride,
form, tetrachloroethane,
toluene, xylene, acetone, me…
…temperature and for a
…rbed hexachlorinated

…r of the Leland Stanford Junior Univers…

…of Ser. No. 686,733, Jan. 4, 1985, Pat. N…
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Int. Cl.⁴ A61K 49…

NMR imaging of a subject comprising administer…

…lelity Bank, Nation…
…1984, abandoned, which
…division of Ser. No. 328,680, Dec. 8, 1981, Pat. No. 4,462,9…
which is a continuation of Ser. No. 194,99…
abandoned, which is a continuation of Ser. N…
1979, abandoned, which is a continuation of Ser. …
Nov. 18, 1977, abandoned. This application Jun. 9, 19…
No. 871,985
Claims priority, application Switzerland, No…
…977, 6989/77
…term of this patent subs…
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and Abla A. Crea
etus Corporation
574, Feb. 3, 1983,
which is a continuation-in-part of Ser. No. 340,782, Jan. 1
1982, abandoned. This application Jul. 15, 1985, Ser. N
755,265
application Cana
45/02; C07K 1

Nov. 4, 1985, Ser. No. 795,845
A61B 19/00; A61K 43/00; 49

763,489, Aug. 8, 198

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isedown Estate, Box 3
land, N.Y. 11765
led Jan. 21, 1987, Ser. N
Int. Cl.⁴ A61C 31/76
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e salt, or a mixture of two
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TIC NUTRIENTS TO TREAT T
AND ISCHEMIC DISORDI
Osterholm, Radnor, Pa., assignor to
y, Philadelphia, Pa.
Ser. No. 139,886, Apr. 14, 1980 Pat. No.
olication Sep. 30, 1982, Ser. No. 42

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molarity of betwee

ll of Conn., assignors to Richar

Maidenhead; Peter J. Hylands, and Debo
e Jessup, both of Wickham, all of England
Scherer Corp., Troy, Mich.

14572, Sep. 22, 1982, 8227062

S. Cl. 424—195.1

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awrence, Kans., assignors to Merck &

ATION AND PRODUCING
CO

kashi Sonobe; Hiroshi ashi Arawa,
Saitama; Tadayoshi Ol
Saitama; Chiharu Yam

Ser. No. 520,345, Aug

Int. Cl.⁴ A61K
S. Cl. 424—471

OMPOSITION

fford Rd., Parsip
Fox Pl., Hicksv
Filed Oct. 14, 1986, S
Int. Cl.⁴ A23G 3/

R OF ZINC S
Godfrey, White P
ence & Design, Inc., White Plains, N.Y
Continuation of Ser. No. 756,070, Jun 10, 198:
4,684,528, which is a continuation-in-part of Ser. N
1984, abandoned. This application Aug 3, 1987,
No. 80,657
n of the term of this patent subsequent to Aug 4,
has been disclaimed
Int. Cl.⁴ A23L 1/304; 1/305; A

an der Heem, 3001 Sout
altimore, Md. 21201
Filed Feb. 3, 1986, Ser
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59,833, Mar.
n. 15, 1986, Se
application Japan, Ma
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4,758,446
ESS FOR THE MANUFACTURE OF
SPREADABLE AT REFRIGERATION
TEMPERATURE
o; Jan-Ake Larsson, Gotene, and Kurt
eborg, all of Sweden, assignors to Arla E
g & Svenska Mejeriernas Riksforening, S
f Ser. No. 699,045, Feb. 7, 1985, abandone
application Oct. 27, 1986, Ser. No. 922,771
s priority, application Sweden, Mar. 9, 1984, 8401332-5

priority, application Netherlands,

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COATED OPHTHALMIC LENSES AND METHOD F
COATING THE SAME
Timothy C. Sandvig, Woodville, Wis.; Dean A. Ersfeld, Maple
and Eric P. Berg, Woodbury, both of Minn., assignors
net Armorlite, Inc., San Marcos, Calif
inuation of Ser. No. 522,554, Aug. 15, 1983, Pat. No.
4,544,572, which is a continuation-in-part of Ser. No. 415,171
Sep. 7, 1982, abandoned. This application May 31, 1985, Ser. No.
739,885
Int. Cl.⁴ B05D
427—54.1 11 Claims
arved ophthalmic lens having an SF abrasion resis

4,758,449
METHOD FOR MAKING A PHOSPH
Masamichi Kimura, Ibaraki; Mutsuo Masuda, Kyoto; Mas
Tokunaga, and Shigeya Ashizaki, both of Takatsuki, all
Japan, assignors to Matsushita Electronics Corporatio
Kadoma, Japan
Continuation of Ser. No. 748,400, Jun. 24, 1985, abandoned
This application Feb. 19, 1987, Ser. No. 16,990
laims priority, application
Int. Cl.⁴ B
S. Cl. 427—72

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both of Sweden, assignors to PLM Aktiebolag, Sweden
Continuation of Ser. No. 487,282, Apr. 21, 1983, abandoned,
hich is a continuation of Ser. No. 154,890, May 30, 1980, Pat.
This application Dec. 5, 1985, Ser. No. 806,058
application Sweden, Jun. 11, 1979, 7905047
he term of this patent subsequent to Feb. 15
2000, has been disclaimed

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R BIO-TRANS

F SEPARATION

aille, 49340 Trementines; Patric
r Hugo, 49300 Cholet; Jacques
49360 Maulevrier, and Jean P.
Dautais, 73 Rue Jean Mermoz, 44340 Bouguenais, all of
France
Filed Sep. 30, 1986, Ser. No. 914,083
ity, application France, Oct. 1, 1985, 85 14518
Int. Cl.⁴ C02C

transformations and phase sepa-
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Filed Jan. 17, 1986, Ser. No. 819,61
Claims priority, application United Kingdom, J
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Int. Cl.⁴ B32B 27/0

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FUEL AND VAPOR TUBE HAVING
ED HEAT RESISTANCE

ivar, and Joseph M. Concaugh, Canton,
both of Ohio, assignors to Handy & Harman Automotive
Group Inc., Dover, Ohio
Continuation-in-part of Ser. No. 753,743, Jul. 10, 1985
bandoned. This application Dec. 2, 1986, Ser. No. 943
Int. Cl.⁴ F16L 11/

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694,951, Jan 25, 1985, Pat. No
f Ser. No. 567,958, Jan 4, 1984, a
1987, Ser. No. 5,6

4,758,461

RDING PAPER AND INK JET RECORDIN
METHOD BY USE THEREOF

Takashi Akiya, Yokohama; Ryuichi Arai; Mamoru Sakaki, b
of Sagamihara; Naoya Morohoshi, Hiratsuka; Megu
Munakata, Atsugi, and Masako Saito, Yokohama, all of J
to Canon Kabushiki Kaisha, Tokyo, Japan
l Dec. 3, 1987, Ser. No. 128,212
Japan, Dec. 5, 1986, 61-29024
86, 61-289020; Dec. 5, 19

Int. Cl.4 B41M

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r. 29, 1986, Ser. No. 9
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Kobayashi, Nagoya, and Mitsuo
assignors to Mitsubishi Rayon Co
Filed Sep. 12, 1986, Ser
laims priority, application Japan,
28, 1986, 61-14705

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Jan. 13, 1986, abandoned. Th

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azuyuki Kitami

Claims priority, appli
Apr. 28, 1983, 58-73736

agawa, all of Jap
d Jun. 24, 1986

d Nov. 20, 1986, Ser. No. 933,40
12B 9/00; C04B 35/00; H01M 4

ACCORDIN
p Tsukamoto, Tokyo, Japan, assign
Japan
Filed Nov. 20, 1986,
Claims priority, application Ja

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30, 1986, Ser. No. 9
B32R 27/08; C09

RROSION RESISTANT NICKEL-ZINC-PHOS
ATING AND METHOD OF ELECTROPLATI
COATING

dararajan Swathirajan, Troy, and Youssef M. Mikhail, St
ing Heights, both of Mich., assignors to General Mo
Corporation, Detroit, Mich.
Filed Mar. 30, 1987, S

4,758,480
UBSTRATE TAILORED COATINGS

ht, North Palm Beach; Abdus S. Khan, Palm
nd Richard H. Barkalow, Palm Beach Sh
nors to United Technologies Corporation,

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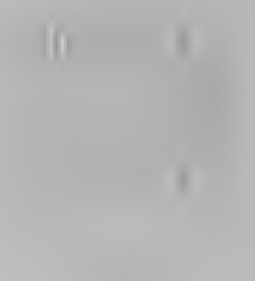
00085, § 371 Date Oc
6, PCT Pub. No. WO8



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Osaka; Akira Ishi-
ntaka Suzuki, Mie
, Saitama; Masatoshi
mi Hayakawa, Mie.
Wada, Mie, and Satoshi
, assignors to Shin-Kobe
yo, Japan

aul E. Har-
thagno, Pau
ine, Courbe-
anada, a part
tion-in-part of Ser. No. 584,535, Feb. 23, 1984, Pat. No
26. This application Sep. 11, 1985
Int. Cl.⁴ H01M

and Tosh
Electric Co., Ltd., Osaka, Japan
Filed Oct. 29, 1987, Ser. No. 113,855
Claims priority, application Japan, Oct. 30, 1986

AUDIOVISUAL SI
xler, Los Altos Hills
Jan. 22, 1985
Ser. No. 443,59
s application Ot
Int. Cl.⁴ G03C
U.S. Cl. 430—12

ing a set of slides, each slide having a
e dealing with a broad topic, each sl

graphic image on an
erization lasting th

ENDLESS 917

uichi Yamazaki, Mishima, and At
of Japan, assignors to Ricoh Co
Filed Apr. 24, 1985, S
Claims priority, application Jap
1984, 59-82268

nnected to said electroconductive support
t portion comprising (i) a joint reinforcement
so as to cover said joint portion, said joint
r comprising a polymeric material
mperature of −10° C or less, and

PHIC IMAGING MEM
AMORPHOUS BORON
an Stolka, and Damodar M. Pai, both of Fai
assignors to Xerox Corporation, Stamford, Conn
Filed Nov. 24, 1986, Ser. No. 934,37

all of Japan, assigno

priority, applic.

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RY TONER AND DEVELOPER COMPOSITION
r S. Alexandrovich, Rochester; Paul A. Hartley, Spence
rt, and Joseph A. Pavlisko, Pittsford, all of N.Y., assignor
astman Kodak Company, Rochester, N.Y.
Filed Jul. 6, 1987, Ser. No. 69,729
Int. Cl.⁴ G03G 9/08
Cl. 430—110

fixable binder resin which

e and as a minor comp-

No. 858,463

ymeric particles, each particle

weight of the mixture of monomers com-

by weight of the mixture of monomers

vinyl alkanecar-
f which contain 4

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d such that the weakly
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l electrographic developer comprising a
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MPOSITIONS
ter, and Thomas J. McGowan, V
to Xerox Corporation, Stamford

ov. 24, 1986, Ser. No. 93
Int. Cl.⁴ G03G

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eans to cause the develop
ne from the supplying means to the tr
s the clearance, (b) developing the lat

nently affixing the image to the substrate

4,758,494
INORGANIC METAL SALT AS ADJUVANT FOR
ATIVE LIQUID ELECTROSTATIC DEVELOPERS
hester, Pa., assignor to E. I. Du Pont
ny, Wilmington, Del.

Int. Cl.⁴ G03G

shizuoka, Japan, assignors to Fuji Photo Film Co., L
Kanagawa, Japan

omprising a su

REDUCING AGENT AND PO
COMPOUND
i, Minami-ashigara, Japan, assi
Kanagawa, Japan
Mar. 11, 1987, Ser. No. 24,484
application Japan, Mar. 11, 198
Int. Cl.⁴ G03
Cl. 430—138
A light-sensitive material

VOL 1092 ISS 3 JL 19 1988 UMI

Harada; Shigeru Nakamura, and Hiroshi Tanabe, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd

14 Claims

on transfer photographic material compris

RECORDING MEDIUM

oh Co., Ltd., Japan

uation-in-part of Ser. No. 752,383, Jul. 3, 1985, doned. This application Sep. 5, 1986, Ser. No. 904,850

Claims priority,

neral formula

xy group, thi

group, thiocya

mino group.

4,758,500

PROCESS FOR THE CEMENT PHOTOPOLYMERIZABLE FLEXOGR ELEMENTS OR PRINTING

Manfred Schober, Offenbach, and Hans L. both of Fed. Rep. of Germany, assignors to E Nemours and Company, Wilmington, Del.

Filed Dec. 19, 1986, Ser. No. 943,765

priority, application Fed. Rep. of Germ 0774

Int. Cl.⁴ G03C

nted is applied an adhesiv

sive-coated edges are h

ockland, St Alban

led Jun. 5, 1987, Ser. No. 5

§ 371 Date Oc

Pub. No. WO8

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SAME
io Ohya; Syoji Matsuzaka; Yasuo Tosaka, and
986, Ser. No 945,306
application Japan, Dec. 26, 1985
Int. Cl.4 G03C

FOR THE
ILVER HALI
ermany, assigno
ien, Fed. Rep

th of Toronto, all of Canada, assignors
tion, Stamford, Conn
Filed Jun. 15, 1984, Ser. No. 62
Int. Cl.4 G03G 9/14
S. Cl. 430—903
1. An improved single compon

eth Morray, H
ieta MacKay, C
414,439, Sep. 2, 1982, Pat. No. 4,563,52
ion Oct. 4, 1985, Ser. No. 784,115
rity, application United Kingdom, Sep. 2, 198
C07K 1/00, 3/00 G01N 33/563 33
displaying the antigen

E ESTEROLYTIC
OLYTIC ENZYME
uppertal, Fed. Rep. of
thens, Ga., and A. Christopher Skjold, Elk
to Miles Inc., Elkhart, Ind.
Filed Mar. 11, 1985, Ser. No. 710,42
riority, application Fed. Rep. of
198
f the term of this patent sub

4,758,50
MICROBE GROWTH DETECTION
mas W. Ottley, Framfield, England, assignor
n, England
85/00321, § 371 Date Mar. 17, 198
986, PCT Pub. No. WO86/00921,
ate Feb. 13, 1986
PCT Filed Jul. 18, 1985, Ser. No. 849,509
ority, application United Kingdom, Jul

335,699, Dec. 3
n Dec. 18, 1984
e term of this patent
2001, has been disclaimed
Int. Cl.4 E12P 21/00; A61K 4

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ai, Chigasaki, and Kazukiyo Onodera, Tokyo, all of

B cell line selected from the group consist

d William H. Rastetter

s to Genentech, Inc., South S

t-part of Ser. No. 508,409, Jun. 28, 1983

4,758,515

THE PREPARATION OI

IGESTION PRODUCT

AINING PARTS OF PI

eter Bärwald, Berlin, and Erhard F. Flother, Kassel, Fed. Rep. of Germany, assignors to Gunter Barwald, Fed. Rep. of Germany

Filed Mar. 7, 1986, Ser. No. 837,306

Claims priority, application Fed. Rep. of Gern

Filed Dec. 13, 1983, Ser. No. 560,79

priority, application Australia, Dec

PF7247/82

Int. Cl.⁴ C12N

Parizek, Lenexa, Kans., assignor to Mo

ephen C. Taylor, Darlington, England, assignor to Imp hemical Industries PLC, London, England

Filed Oct. 21, 1985, Ser. No. 789,765

Claims priority, application United Kingdom, Oc 8427032; Dec. 18, 1984, 8431923

Int. Cl.⁴ C07B *19/02*, C12N *9/14*, *1/20*, C12P

U.S. Cl. 435—280

1. A cell-free enzyme c

to Environmental Technical

Filed 1985, Ser. No. 763,7

s priority,

es to a method

otal gaseous m

rporation, Danb

b. 15, 1985, S

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4,758,522

ASSAY FOR HUMAN CHROMOGR

Connor, San Diego, Calif., assignor to Th

Calif

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19 Claims

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gramn A in said sample

JR REMOVING

TRACER

nn Harjunmaa, Espoo, Finland, a

Csinki, Finland

4,758,524

ANTIBODIES WITH SPECIFI

IKED FIBRIN DERIVATIVES AND ASSAY FOR SAID DERIVATIVES

undesen, Ekibin, and Dennis B. Rylatt, Rosalie, both

tralia, assignors to Fielder Gillespie David Limited,

Australia

Filed Mar. 15, 1984, Ser. No. 590,054

priority, application Australia, Mar. 17, 1983, PF8494

Int. Cl.⁴ G01N 33/53; C12N 15/00

OF MAKING LIGHT-RECEI

da; Koichi Suda, both of Hitach

uma, Taga, and Keiichi Morita, Hitachi, al

gnors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 14, 1986, Ser. No. 884,894

Claims priority, application Japan, Jul. 15, 1985

Int. Cl.⁴ H01L 21/385, 21/40, 2

. Cl. 437—2

de film having a wind

pal surfaces

pal surface the

having a low

4,758,526

PROCEDURE FOR PRODUCI

SYSTEM OF THIN-FILM SOLA

Klaus Thalheimer

Messerschmitt-B

Germany

Filed Feb. 17, 1987, Ser. No. 15,266

Claims priority, application Fed. Rep. of Germa

86, 3604917

. Cl. 437

METHOD OF MAKING SEMICONDUCTOR PHOTO-ELECTRICALLY-SENSITIVE DEVICE

Shunpei Yamazaki, Tokyo, Japan, assignor to Semicondu

Energy Laboratory Co., Ltd., Kanagawa, Japan

Continuation-in-part of Ser. No. 800,694, Nov. 22, 1985, P

No. 4,690,717, which is a division of Ser. No. 525,459, Aug

1983, Pat. No. 4,591,892. This application May 5, 1987, Ser

47,933

iority, application Japan

82, 57-182546

Int. Cl.⁴ H01

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rporation, Princeton, N
ct. 31, 1985, Ser. No

l Dec. 8, 1986, Ser. No. 939,07

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ppingers Falls,

MAKING A
OR LASER D
G OF A CANTILE

etsuya Yagi, and Hitoshi Kagawa, both of Hyogo, Japan, as-
signors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
vision of Ser. No. 917,678, Oct. 10, 1986. This application Sep
2, 1987, Ser. No. 92,225
pplication Japan, Oct. 11, 1985

S. Cl. 437—129

1. A method for manufa

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ing laser oscillati
response to the externally applied vo
rming photoelectric conversion upo

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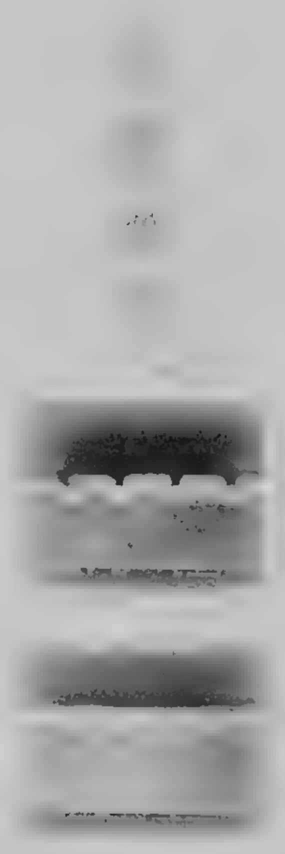

v until the tem perat-
elting temperature and

4,758,534
RODUCING POROUS REFRACTORY
S EMBEDDED IN SEMICONDUCTOR
DEVICES
New Providence, and James P. Harbison,
ssignors to Bell Communications Re-
, N.J.
Nov. 13, 1985, Ser. No. 797,691
nt. Cl.⁴ H01L 2

4,758,535
METHOD FOR PRODUCING SEMICO
Yasushi Sakakibara; Yasuo Nakajima, and I
all of Itami, Japan, assignors to Mitsubishi
Kaisha, Tokyo, Japan
Filed Mar. 16, 1987, Ser. No. 26
application Japan
⁴ H01L 21 20

aid substrate along the

tor wherein each of said sides corresp
of a laser resonator, and
sequentially forming, on said groove and the
said substrate, clad layers and said active lay

4,758,536
PTACLE FOR PREMISE WIRING SYSTEM
L. Miller, Atlanta, Ga.; Robert M. Renn, Pfafftow
nd Lincoln E. Roberts, Decatur, Ga., assign
rated, Harrisburg, Pa.
Filed Sep. 18, 1986, Ser. No. 908,755
nt. Cl.⁴ H01R 9/07, 13 453 13 436, 19
39—138

Corporation, Santa Clar
er. No. 778,944, Sep. 23

Filed Ma
Claims priority, a

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SINTERED BODY
TRANSMITTANCE
Atsugi, Japan, assignor to
Ltd., Shinnanyo, Japan
Jun. 20, 1986, Ser. No
application Japan, Jun

4,758,543
DEHYDROGENATION CATALYST
Sherrod, and Allen R. Smith, both of Lake
assignors to The Dow Chemical Compan

4,758,544
POSITION AND HYDROCRO
OF OILS USING SAME
W. Plesko, Allison Park; Allen E. Somers, Pittsburgh
both of Pa.; John J. Stanulonis, Solon, Ohio; Harold E. Swil
and Roger F. Vogel, Butler, both of Pa., assignors
Research Company, San Francisco, Calif
Filed Jul. 17, 1985, Ser. No. 755,827
Int. Cl.⁴ B01J 27
Cl. 502—208

ACTURE OF CA
LAR CATALYST M
RON ORE OR CHROMIUM ORE WITH TH
USE OF A BINDER
Schlangenbad-Bärstadt; Hartmut Kainer, and
Blagoje Levkov, both of Wiesbaden, all of Fed. Rep. of Germany, assignors to Didier-Werke AG, Wiesbaden, Fed. Rep. of Germany
Filed Dec. 5, 1986, Ser. No. 9
Claims priority, application Fed. Rep. of

material com
of iron ore and

4,758,546
PREPARATION OF CATALYSTS, AND THEIR U
HYDROGENATION AND AMINATION REACTIONS
Karl Baer, Weinheim; Wolfgang Reiss, Ludwigshafen; Juergen Schossig, Mannheim, and Herbert Toussaint, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Jul. 2, 1986, Ser. No. 881,24
application Fed. Rep. of Germ
Int. Cl.⁴ B01J 23
U.S. Cl. 502—337

1. A process for the preparation

4,758,547
HEAT SENSITIVE RECORDING
Itabashi; Akihiro Shimomura, and Noriyuk
Shizuoka, Japan, assignors to Fuji Photo Film
Kanagawa, Japan
Filed Sep. 2, 1986, Ser. No. 902,831
priority, application Japa
Int. Cl.⁴ B41

PREPARATION
Edingen-Neckarhausen, and
both of Fed. Rep. of Ger
gesellschaft, Rheinland-P
Filed Jun. 30, 1987,

ishi, and Masas
assignors to Keb
Kagaku Kenkyujo, Japan
Filed Nov. 27, 1984, Ser. No
priority, application Japan, Dec

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Jan. 2, 1987, Ser. No.

[illegible]

CLEIC ACID

AL REPELL

m, assignor to Ots

Naruto and Ajinomoto Co., Inc., I

No. 680,111, Dec. 10, 1984, abandon

No. 104,550

1983, 58-23414

[illegible]

Cl. 514—16

[illegible]

D FOR TREA

T WITH ORG

Pat. No. 4,670,42

[illegible]

EM DERIVATIVES

, Hattersheim am Main; Diet

ard Ehlers, Hofheim am Tau

Wiesbaden, all of Fed. R

Romainville, France, as

ft, Frankfurt am Main, I

Filed Mar. 30, 1978, Ser. No. 891,85

ms priority, application Fed. Rep. of Germar

714880; Apr. 15, 1977, 2716707

[illegible]

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to Ciba-Geigy

, application France, Jul.
Cl.^{4} A61K *31/55*; C07D

RIAL HYPERT
ODIC CONDIT
Le Baut, Sur Loire; Louis Spart
Helene Creuzet, Bordeaux; Claud
both of Pessac, and Gisele

POIKILOTHERMIA

tin W. Adler, Dresher, and Ellen B. Geller, Philadelphia, both of Pa., assignors to Temple University of the Commonwealth System of Higher Education, Philadelphia, Pa.

Filed Dec. 18, 1985, Ser. No. 810,969
Int. Cl.^{4} A61K *31/40, 31/44, 31/54*
*4.8 22 Claims

ation comprising from about 0.1 milligram to

3-ALKOXY-2-AMINOPROPYAMINES, CARDIOVASCULAR COMPOSITIONS AND USE

Philip P. Gross, Philadelphia, and Richard J. Mohrba Maple Glen, both of Pa., assignors to McNeilab, Inc., Springhouse, Pa.

ision of Ser. No. 828,923, Feb. 12, 1986, Pat. No. 4,7

FUNGICIDES

Costin Rentzea, Heidelberg; Ernst Buschmann, Norbert Goetz, Worms; Eberhard Ammermann fen, and Ernst-Heinrich
Rep. of Germany, assig
Rep. of Germany

Filed Feb. 1
Claims priority, applica
1985, 35

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ATED-4-SUBSTITUTED
ATIVES, PROCESSES FOR
THEREOF, AND
POSITION CONTAINING
THE SAME

atsuki; Katsuhiko Hino, Ikoma; Toshiaki
irakata, and Katsuyoshi Kawashima, Kobe, all of
assignors to Dainippon Pharmaceutical Co., Ltd.,

PCT JP85/00654, § 371 Date Jul. 28, 1986, § 102(e)
1986, PCT Pub. No. WO86/03198, PCT I

led Nov. 27, 1985, Ser. No. 893,313

4,758,56

AMINO-PIPERAZINYL- OR
ERAZINYL)QUINOLIN
NONE DERIVATIVES
COMPOSITIONS CON
THEM

esiderio Desideri; Riccardo Stradi, and Alberto Milanese, all
of Monza, Italy, assignors to Rottapharm S.p.A., Milan, Italy
Filed Nov. 14, 1986, Ser. No. 931,411
priority, application Italy, Nov. 19, 1985, 22887 A/85
985, 22888 A/85

4,758,566

QUINOLINE THERAPEUTIC AGENTS

Simon F. Campbell, and John D. Hardstone, both of Deal, En
gland, assignors to Pfizer Inc., New York, N.Y.
Division of Ser. No. 925,029, Oct. 30, 1986, Pat. No. 4,680,22
which is a division of Ser. No. 515,095, Ju
4,656,174. This application May 11, 198
Claims priority, application United Kingdom,
8221457

Int. Cl.⁴ A61K 31/47

1-benzylbenzimidazol-2-yl and 2
yrimidin-4-yl, or Y is selected fro

ingbourne, and
assignors to F

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aul W. Manley, Monks Risborough, and Lal M. Fook, Ma
head Berks, both of England, assignors to G. D. Searle &

Continuation of

[illegible]

J. Scott Hess, both of Ind
lly and Company, Indianapolis, Ind
. 569,364, Jan. 9, 1984, abandoned
a continuation-in-part of Ser. No. 469,883, Feb. 25
andoned, which is a continuation-in-part
May 3, 1982, abandoned. This applicat
1986, Ser. No. 878,718
Int. Cl.4 A61K 31/

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Claims priorit
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Int. Cl.4 A61

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Manfred Ja
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nd Gerd Hanss
many, assignors
d. Rep. of Germ
Jan. 6, 1986, S

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y. Midland, M
ne. 28, 1987, S

ical Company, Midland, Mi
Filed Mar. 12, 1987, Se
Int. Cl.4 C08

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1092
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ra; Matsubara Sumiyuki, Matsudo, and
nku, all of Japan, assignors to Mitsui K
aisha, Tokyo, Japan
Filed Jan. 9, 1987, Ser. N
ty. application Japan, Aug
1-199603; Oct. 13, 1986, 61-24
Int. Cl.⁴ C08K 9/10, 3/34

Kaisha Nard Kenkyusho, Osaka, both

POLYMERS CONTAI
PREPARED BY THE REACTION OF POLY
COMPOUNDS AND CYCLIC CARBONA
eter Engel, Kelsterbach; Christoph Just, Niedernha
hard Brindopke, Frankfurt am Main, and Gerd Wal
den, all of Fed. Rep. of Germany, a
Fed. Rep. of Germany

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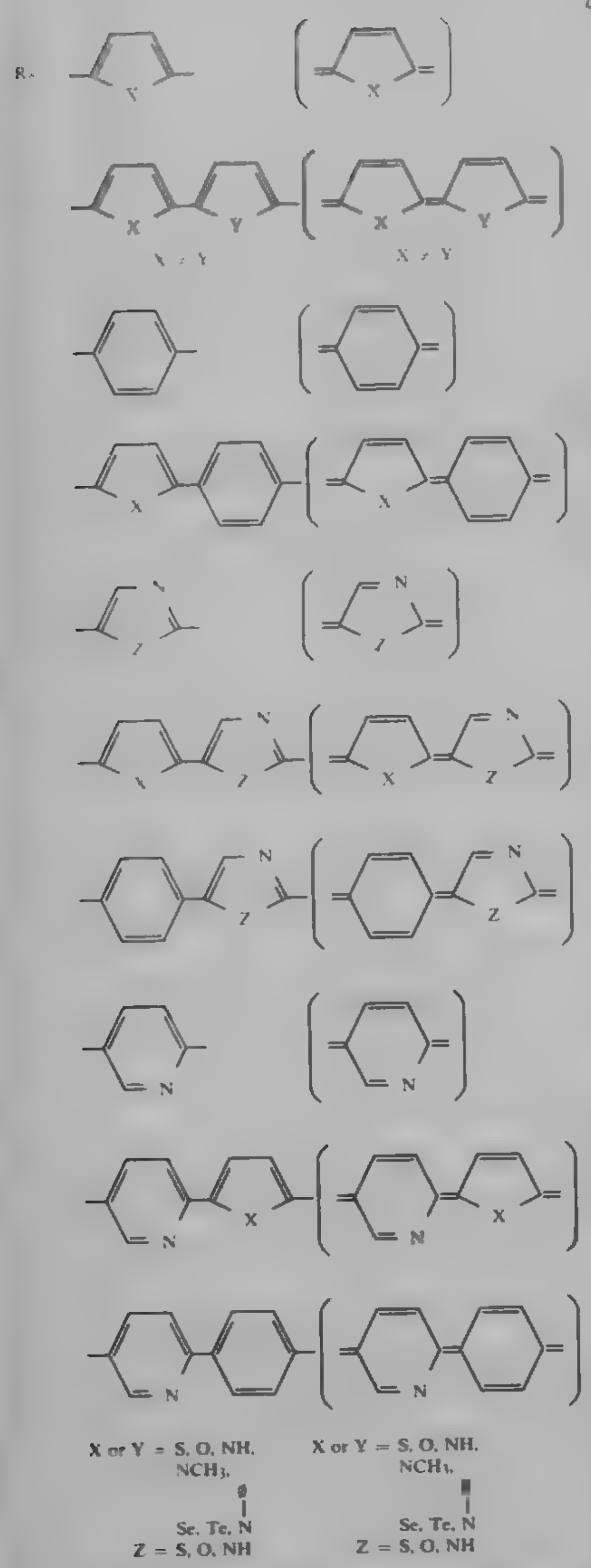
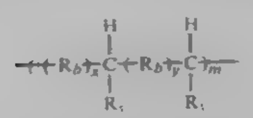

R5
X
Y
X ≠ Y
Z
N
X or Y = S, O, NH, NCH3, Se, Te, N
Z = S, O, NH
X or Y = S, O, NH, NCH3, Se, Te, N
Z = S, O, NH

side chain R_5 is selected from the class consisting of aliphatic, aromatic and heterocyclic groups derivable from an aldehyde of the formula R_5CHO;

x and y are positive integers having a value from 1 to 5; and m is a positive integer having a value from 1 to about 10,000,

comprising the step of converting nonconjugated polymer precursors of the structural formula,


$$-\!\!-\!\![(R_6)_x\!-\!\underset{R_5}{\overset{H}{C}}\!-\!(R_6)_y\!-\!\underset{R_5}{\overset{H}{C}}]_m\!-\!\!-$$

where R_6, R_5, x, y and m are as above, by removing the hydrogens (H) from the bridge carbons (C).

4,758,635

POLYAMINDOAMINE BASED METAL ION CONTROL COMPOUND

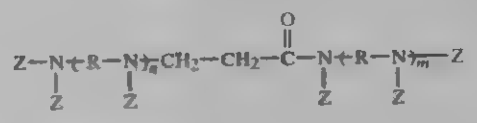
David A. Wilson, Richwood; Druce K. Crump, Lake Jackson, and Jaime Simon, Angleton, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 2, 1984, Ser. No. 626,801

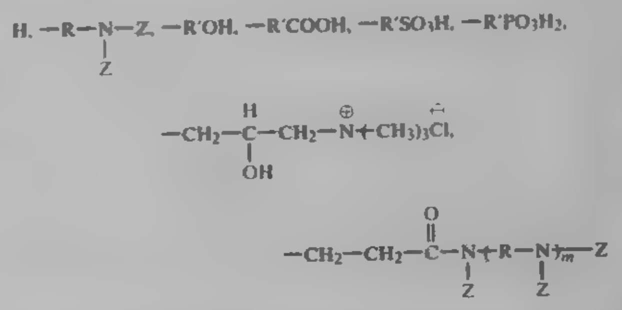
Int. Cl.^{4} C08G *83/00*

U.S. Cl. 525—418 **29 Claims**

1. A polymer having the structure


$$Z-\underset{Z}{N}\!-\!(R-\underset{Z}{N})_n\!-\!CH_2-CH_2-\overset{O}{\overset{\|}{C}}-\underset{Z}{N}\!-\!(R-\underset{Z}{N})_m\!-\!Z$$

wherein Z is at least one of


$$H,\ -R-\underset{Z}{N}-Z,\ -R'OH,\ -R'COOH,\ -R'SO_3H,\ -R'PO_3H_2,$$

$$-CH_2-\underset{OH}{\overset{H}{C}}-CH_2-\overset{\oplus}{N}\!-\!(CH_3)_3\overset{\ominus}{Cl},$$

$$-CH_2-CH_2-\overset{O}{\overset{\|}{C}}-\underset{Z}{N}\!-\!(R-\underset{Z}{N})_m\!-\!Z$$

and wherein the acid groups alternatively are in the form of alkali, alkaline earth or ammonium salts, R and R′ are saturated hydrocarbon residues having from 1 to 6 and 1 to 4 carbon atoms, respectively, and m and n are 0 to 10 and wherein at least one Z is other than hydrogen.

4,758,636

POLYESTER COMPOSITION

Kenji Hijikata, Mishima, and Toshio Kanoe, Fuji, both of Japan, assignors to Polyplastics Company, Ltd., Japan

Filed Nov. 21, 1986, Ser. No. 933,417

Claims priority, application Japan, Dec. 6, 1985, 60-274695

Int. Cl.^{4} C08F *20/00;* **C08G** *63/76*

U.S. Cl. 525—438 **19 Claims**

1. A melt-processable composition of improved thermal stability comprising (a) 80 to 98 percent by weight of a melt-processable polyester which is capable of forming an anisotropic melt phase, and (b) approximately 2 to 20 percent by weight of an epoxy compound, wherein said epoxy compound renders said component (a) incapable of substantial chain growth upon heating.

4,758,637

SILICONE-MODIFIED POLYESTER RESIN AND SILICONE-SHEATHED POLYESTER FIBERS MADE THEREFROM

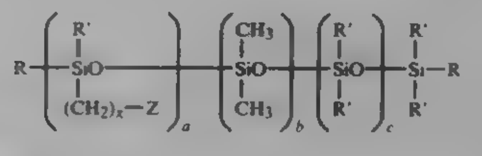
James H. Merrifield, Mt. Kisco, and George H. Greene, Croton-on-Hudson, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 774,962, Sep. 11, 1985, Pat. No. 4,640,962. This application Nov. 21, 1986, Ser. No. 933,173

Int. Cl.^{4} C08F *283/00*

U.S. Cl. 525—474 **48 Claims**

1. A process for preparing a silicone-modified polyester resin comprising reacting an aromatic dicarboxylic acid or its diester, a diol and a siloxane block polymer of the general formula:


$$R-\left(\underset{(CH_2)_x-Z}{\overset{R'}{SiO}}\right)_a\left(\underset{CH_3}{\overset{CH_3}{SiO}}\right)_b\left(\underset{R'}{\overset{R'}{SiO}}\right)_c\underset{R'}{\overset{R'}{Si}}-R$$

wherein

R is individually a monovalent group selected from the group consisting of aminoalkyl, aminoaryl, (carboalkoxy)alkyl, (carboaryloxy)alkyl, (carboalkoxy)aryl, and (carboaryloxy)aryl;

R′ is individually a monovalent group selected from the group consisting of alkyl, aryl, alkenyl, and aralkyl groups containing from 1 to 8 carbon atoms;

Z is selected from the group consisting of alkyl, aryl, aralkyl, alkoxy, polyoxyalkyl, alkenyl and siloxy with the proviso that when Z is siloxy x must equal zero;

a has a value of 0 to 10;

b has a value of 0 to 50,000;

c has a value of 0 to 1,000 and the sum of a+b+c is such that the polysiloxane block polymer contains at least 10 silicon atoms; and

x has a value of 0, 1, 2 or 3; wherein said reaction takes place in two stages, the first stage being either a transesterification between the diester of the dicarboxylic acid and the coreactants or an esterification between the dicarboxylic acid and the coreactants, the second stage being a polycondensation reaction wherein said siloxane block copolymer constitutes from 0.1 to 10 weight percent, based on the total reaction product and forms uniform domains approximately 0.05 to 6 micron in average size.

4,758,638

ADVANCED EPOXY RESINS

Richard A. Hickner, Lake Jackson; Gwendolyn M. Grays, Sugarland, and Kevin A. Owens, Katy, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 887,848, Jul. 18, 1986, abandoned, which is a continuation-in-part of Ser. No. 750,629, Jun. 26, 1985, Pat. No. 4,608,313, which is a continuation-in-part of Ser. No. 640,268, Aug. 13, 1984, abandoned, which is a continuation-in-part of Ser. No. 499,097, May 27, 1983, abandoned, which is a continuation-in-part of Ser. No. 393,969, Jun. 10, 1982, abandoned. This application Sep. 9, 1987, Ser. No. [illegible]

Int. Cl.^{4} C08G *59/02;* **C08L** *63/00*

U.S. Cl. 525—510 **45 Claims**

1. An advanced epoxy resin prepared by reacting in the presence of a suitable catalyst

(A) a composition comprising

(1) at least one aliphatic diepoxide other than a diglyoidyl ether of a polyoxyethylene glycol and

(2) at least one aromatic diepoxide; with

(B) at least one compound having two aromatic hydroxyl groups per molecule and an average molecular weight of at least about 188;

wherein components (A-1) and (A-2) are employed in quantities such that from about 10 to less than 50 percent of the epoxide equivalents contained in component (A) are contributed by component (A-1); from greater than 50 to about 90 percent of such epoxide equivalents are contributed by component (A-2) and wherein components (A) and (B) are present in a quantity which provides an epoxy to phenolic hydroxyl ratio of from about 1.06:1 to about 2.9:1.

4,758,639

PROCESS FOR PRODUCTION OF VINYL POLYMER

Shunichi Koyanagi, Yokohama; Hajime Kitamura, Ichihara; Toshihide Shimizu, and Ichiro Kaneko, both of Ibaraki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 765,803, Aug. 15, 1985, abandoned. This application Sep. 3, 1987, Ser. No. 94,020

Claims priority, application Japan, Aug. 17, 1984, 59-171045; Aug. 17, 1984, 59-171046

Int. Cl.^{4} C08F *2/18, 2/22, 2/44*

U.S. Cl. 526—62 **11 Claims**

1. A process for production of a vinyl polymer comprising polymerizing, by suspension polymerization or emulsion polymerization, at least one kind of vinyl monomer in an aqueous medium in a polymerizer, wherein the inner wall surface of the polymerizer and portions of the auxilliary equipment thereof which come into contact with the monomer during polymerization have a surface roughness of not greater than 1 μm and have been previously coated with a scaling preventive coating comprising at least one component selected from dyes and pigments.

4,758,640

VINYLSILYL GROUP-CONTAINING MONODISPERSE POLYMERIC COMPOUND AND A METHOD FOR THE PREPARATION THEREOF

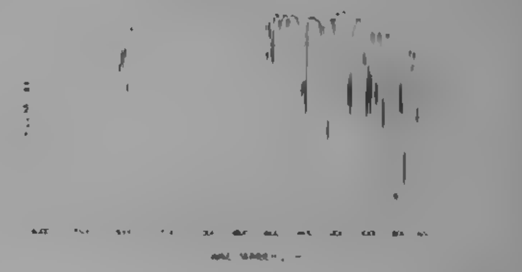
Teruo Fujimoto; Minoru Takamizawa; Akira Yamamoto, and Toshinobu Ishihara, all of Niigata, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 660,718, Oct. 15, 1984, abandoned. This application May 7, 1986, Ser. No. 861,739

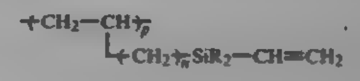
Claims priority, application Japan, Oct. 24, 1983, 58-198928

Int. Cl.^{4} C08F *4/46, 230/08*

U.S. Cl. 526—173 **3 Claims**



1. A method for obtaining anionic polymerization, a vinylsilyl group-containing polymeric compound having a substantially monodisperse molecular weight distribution represented by the recurring structural units of the formula


$$-(CH_2-\underset{\llcorner(CH_2)_n SiR_2-CH=CH_2}{CH})_p-$$

in which n is an integer of 0, 1, 2 or 3, R is a monovalent hydrocarbon group selected from the glass consisting of alkyl groups having from 1 to 4 carbon atoms and phenyl group and p is a positive integer corresponding to the degree of polymeri-

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zation of the polymer and is phenylene which comprises polymerizing a vinylsilyl group containing styrene compound represented by the general formula

$$CH_2{=}CH{-}C_6H_4{-}(CH_2)_nSiR_2{-}CH{=}CH_2.$$

in which R is a monovalent hydrocarbon group selected from the class consisting of alkyl groups having from 1 to 4 carbon atoms and phenyl group and n is an integer of 0, 1, 2 or 3, under such conditions that the polymerization takes place by anionic living polymerization solely of the vinyl group directly bonded to the phenylene group —C_6H_4— leaving the vinyl group bonded to the silicon atom unpolymerized.

4,758,641

POLYCARBOXYLIC ACIDS WITH SMALL AMOUNT OF RESIDUAL MONOMER

Chin C. Hsu, Avon Lake, Ohio, assignor to The B F Goodrich Company, Akron, Ohio

Filed Feb. 24, 1987, Ser. No. 17,966

Int. Cl.^{4} C08F *2/00*

U.S. Cl. 526—200 **7 Claims**

1. A process conducted in the presence of less than about 1% of water for preparing a polymer from carboxylic monomer containing less than 0.2% of unreacted monomer having greater than 1% and less than 10% of the carboxyl groups of said monomer neutrialized comprising polymerizing a monomer charge containing at least 90% of an olefinically unsaturated carboxylic acid monomer of 3 to 5 carbon atoms, a partially neutralized salt thereof, and mixtures thereof, in the presence of a solvent in which said carboxylic acid monomer, or a salt thereof, is soluble but in which said polymer is insoluble, said solvent is selected from the group consisting essentially of acetone, alkyl acetates of 1 to 6 carbon atoms in the alkyl group, and mixtures thereof; in the presence of 0.2 to 2.0 weight percent of monomer charge of a crosslinker; and in the presence of 0.4 to 1.0 weight percent of monomer charge of lauroyl peroxide initiator wherein reaction temperature is about 70° to 80° C. or in the presence of less than 2 weight percent of monomer charge of an initiator selected from the group consisting essentially of peroxydicarbonates wherein reaction temperature is about 45° to 55° C.

4,758,642

PROCESS FOR PREPARING IMPROVED HIGH SOLIDS ACRYLIC-BASED COATINGS

Albet I. Yezrielev, Kendall Park, N.J.; Michael G. Romanelli, Brooklyn, N.Y.; William E. Wellman, Edison, and Richard H. Schlosberg, Bridgewater, both of N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Filed Dec. 11, 1985, Ser. No. 807,585

Int. Cl.^{4} C08F *2/00*

U.S. Cl. 526—213 **24 Claims**

1. An improved process for forming high solids acrylic copolymer resins which comprises contacting under polymerizing conditions a polymerization mixture comprising at least one hydroxy-substituted alkyl (meth)acrylate monomer and at least one non-hydroxy substituted alkyl (meth)acrylate monomer in the presence of a free radical initiator and a solvent therefor, said solvent comprising at least one normally liquid organic solvent for said monomers and at least one normally liquid internal olefin having from 6 to 16 carbon atoms.

4,758,643

DENTAL ADHESIVE RESIN COMPOSITIONS

Hisatoshi Tanaka; Kazuo Iwamoto, both of Morioka; Masayuki Takahashi, Tokyo, and Akiyoshi Kotaka, Yoshikawa, all of Japan, assignors to G-C Dental Industrial Corp., Tokyo, Japan

Filed May 6, 1986, Ser. No. 860,028

Claims priority, application Japan, May 24, 1985, 60-110168

Int. Cl.^{4} C08F *30/08*

U.S. Cl. 526—279 **46 Claims**

1. A dental adhesive resin composition, comprising:

(i) 0.5 to 10% by weight of at least one unsaturated carboxylic acid (A) of the formula:

$$R_1{-}CO{-}OH$$

where R_1 is a polymerizable hydrocarbon substituent having at least one double bond;

(ii) 0.5 to 20% by weight of at least one vinyl or allyl ester of an unsaturated carboxylic acid (B) of the formula:

$$R_1{-}CO{-}O{-}R_2$$

where R_1 is a polymerizable hydrocarbon substituent having at least one double bond and R_2 is $CH_2{=}CH{-}$ or $CH_2{=}CH{-}CH_2{-}$; and

(iii) a monomer (C) copolymerizable with the said unsaturated carboxylic acid (A) and the said vinyl or allyl ester of an unsaturated carboxylic acid (B).

4,758,644

BROMOSTYRENE COMPOSITION

Mune Iwamoto; Norifumi Ito; Kazuo Sugazaki; Tetsuyuki Matsubara, and Toshihiko Ando, all of Kanagawa, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Continuation of Ser. No. 828,218, Feb. 10, 1986, abandoned. This application Dec. 18, 1986, Ser. No. 943,892

Claims priority, application Japan, Feb. 19, 1985, 60-29443

Int. Cl.^{4} C08K *5/13;* **C08F** *12/16*

U.S. Cl. 526—293 **4 Claims**

1. A process for the stabilization of bromostyrene which comprises providing a bromostyrene composition comprising 100 parts by weight of bromostyrene having one, two or three bromine atoms substituted on the nucleus thereof and 0.001 to 0.05 parts by weight of a polymerization inhibitor and adding 20 to 3,000 parts by weight of an aromatic vinyl compound to said bromostyrene composition.

4,758,645

PREPARATION OF GRAFT COPOLYMER AND PAINT USE THEREOF

Tadafumi Miyazono; Yoshio Eguchi, both of Osaka; Akiharu Ogino, Tokyo; Haruhiko Sawada, Kanagawa, and Yoshitaka Okude, Osaka, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Division of Ser. No. 711,801, Mar. 11, 1985, Pat. No. 4,714,634. This application Aug. 28, 1987, Ser. No. 90,695

Claims priority, application Japan, May 28, 1984, 59-108164

Int. Cl.^{4} C08G *63/00;* **B05D** *3/02, 1/36;* **B32B** *27/06*

U.S. Cl. 527—311 **8 Claims**

1. A method for preparing graft copolymer comprising reacting cellulose ester with mono- or di-ester of maleic or fumaric acid, and copolymerizing thus obtained cellulose derivative bearing copolymerizable double bonding with other polymerizable monomer(s).

[illegible]

CURABLE HYDROPHILIC SILICONE POLYETHER POLYMER

William J. Raleigh, Rensselaer; James E. Doin, Hoosick Falls, and Frank J. Traver, Troy, all of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Mar. 10, 1987, Ser. No. 24,187

Int. Cl.^{4} C08G *77/06*

U.S. Cl. 528—15 **9 Claims**

1. A composition comprising a bis(alkoxysilyl)polyether copolymer having the formula:

$$(R^2O)_b{-}SiR_a^3{-}R^1O{-}RO{-}_xR^1{-}R_a^3Si(OR^2)_b$$

wherein R is a divalent substituted or unsubstituted hydrocarbon radical of from 2 to about 10 carbon atoms, R^1 is a divalent substituted or unsubstituted hydrocarbon radical of from 2 to about 20 carbon atoms, at least one R^1 is a substituted alkylene group which is a derivative of 10-hendecenoic acid and forms an ester linkage to the polyether moiety, R^2 is a monovalent substituted or unsubstituted hydrocarbon radical of from 1 to about 6 carbon atoms, R^3 is selected from the group consisting of hydrogen and R^2, b is 2 or 3, the sum of a+b is 3, and x is from 1 to 100.

4,758,647

PROCESS OF CROSSLINKING SILICONE RUBBER

Toshio Niwa, and Yasuo Hirai, both of Yamaguchi, Japan, assignors to Kayaku Noury Corporation, Tokyo, Japan

Filed Jan. 5, 1987, Ser. No. 2,273

Int. Cl.^{4} C08G *77/06*

U.S. Cl. 528—24 **5 Claims**

1. A process of crosslinking a silicone rubber comprising heating the rubber in the concurrent presence of both a crosslinking agent effective amount of an aroyl peroxide and a crosslinking agent effective amount of a peroxydicarbonate which is a solid at room temperature.

[illegible]

HIGH SPEED CURE SEALANT

Sidky D. Rizk, Westfield; Harry W. S. Hsieh, Rahway, and John J. Prendergast, Sr., Freehold, all of N.J., assignors to Essex Specialty Products, Inc., Sayerville, N.J.

Filed Oct. 20, 1986, Ser. No. 920,747

Int. Cl.^{4} C08G *18/30*

U.S. Cl. 528—53 **8 Claims**

1. A moisture curable sealant having good stability in the absence of moisture and a rapid cure rate in the sole presence of atmospheric moisture, said sealant comprising a polyurethane prepolymer having an isocyanate functionality between 2.5 and 2.7 and, admixed therewith as a catalyst, from 0.2 to 1.75 percent, by weight of said sealant, of dimorpholinodiethyl ether.

[illegible]

HEAT RESISTANT ORGANIC SYNTHETIC FIBERS AND PROCESS FOR PRODUCING THE SAME

Shoji Asano; Akio Ohmory, both of Kurashiki; Akitsugu Akiyama, Soja; Masanori Osawa, Yokohama; Kohei Shizuka, Fujisawa, and Masahiro Kouno, Kanagawa, all of Japan, assignors to Kuraray Co., Ltd., Okayama and Mitsui Toatsu Chemicals, Inc., Tokyo, both of, Japan

Filed May 13, 1987, Ser. No. 49,253

Claims priority, application Japan, May 21, 1986, 61-117970

Int. Cl.^{4} C08G *18/06*

U.S. Cl. 528—73 **8 Claims**

1. Heat resistant organic fibers comprising a wholly aromatic polymer having amide group and/or imide group, said fibers having properties satisfying the following formulas

$$Tm \geqq 350^\circ\ C.,$$

$$Tm - Tex \geqq 30^\circ\ C.,$$

$$Xc \geqq 10\%$$

$$DE \geqq 10\%$$

$$DSR(Tm) \leqq 15\%\ \text{and}$$

$$\frac{DSR(Tm + 55^\circ\ C.)}{DSR(Tm)} \leq 3$$

wherein Tm is a melting point (°C.); Tex is an exotherm starting temperature (°C); Xc is a degree of crystallization (%); DE is an elongation (%); DSR is a dry shrinkage factor (%) at Tm; and DSR(Tm+55° C.) is a dry shrinkage factor (%) at Tm+55° C.; said wholly aromatic polymer being obtained from a combination of monomers selected from the group consisting of (a) an aromatic polyisocyanate and an aromatic polycarboxylic acid, (b) an aromatic polyisocyanate and an aromatic polycarboxylic acid anhydride, (c) an aromatic polyamine and an aromatic polycarboxylic acid, (d) an aromatic polyamine and an aromatic polycarboxylic acid halide, and (e) an aromatic polyamine and an aromatic polycarboxylic acid ester.

[illegible]

PROCESS AND APPARATUS FOR PRODUCING HIGH MOLECULAR WEIGHT POLYESTERS

Eike Schulz Van Endert, Berlin, Fed. Rep. of Germany, assignor to Karl Fischer Industrieanlagen GmbH, Fed. Rep. of Germany

Filed Apr. 27, 1987, Ser. No. 42,933

Claims priority, application European Pat. Off., Apr. 29, [illegible]

Int. Cl.^{4} C08G *63/02*

U.S. Cl. 528—308.3 **9 Claims**

1. An improved process for the production of high molecular weight polyester, in which a pumpable paste is produced from, in particular, terephthalic acid and alkaline diol, esterified in a multi-stage reactor arrangement and subsequently polycondensated in vacuo in at least one vacuum reactor, the improvement characterized in that the vacuum for the at least one vacuum reactor is produced by means of waste heat generated from the reactor arrangement.

[illegible]

AMORPHOUS AROMATIC COPOLYAMIDE, A PROCESS FOR THE PREPARATION THEREOF, AND SHAPED OBJECT

Doetze J. Sikkema, Ellecom, Netherlands, assignor to Akzo NV, Arnhem, Netherlands

Filed Feb. 27, 1987, Ser. No. 19,675

Claims priority, application Netherlands, Mar. 19, 1986, 8600695

Int. Cl.^{4} C08G *69/12, 69/32*

U.S. Cl. 528—329.1 **16 Claims**

1. A copolyamide which is amorphous and essentially comprises linear chains of each of the amide linked units of the formulae:

(I) —CO—Ar—CO—

(II) —NH—Ar—NH—

(III) —NH—Ar—CO—

wherein Ar independently represents one or more arylene radicals selected from the groups of arylene radicals of the formulae:

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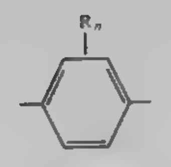
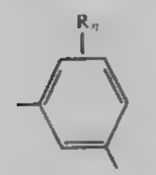
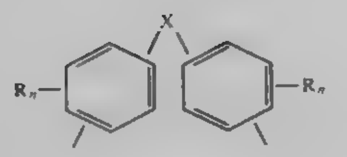


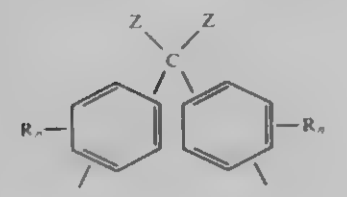
(i)



(ii)

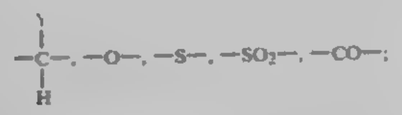


(iii)



(iv)

wherein
R is H, C_{1-4}-alkyl, C_{1-4}-alkoxy, Cl, F, aryl or aryl-C_{1-4}-alkyl;
X is



$\underset{H}{\overset{Y}{-C-}}$, —O—, —S—, —$SO_2$—, —CO—;

Y is H or C_{1-4} alkyl;
Z,Z' are the same or different and represent C_{1-4} alkyl or together represent cyclohexyl;
n is 1–4,
and in the formulae (iii) and (iv) the free valencies are in the position meta or para relative to the aryl-X or aryl-CZZ' bond;
with the proviso that at least one of the units of formula (I), (II) or (III) comprises different arylene radicals from more than one of the groups of formulae (i), (ii), (iii) and (iv), respectively.

4,758,652

PROCESS FOR PREPARING OLIGOMERS AND TELECHELS HAVING CARBOXY-PIPERAZINE UNITS, AND NEW OLIGOMERS AND TELECHELS OF POLY(CARBOXYPIPERAZINE)

Walter Heitz, Kirchhain, and Reinhold Schwalm, Wachenheim, both of Fed. Rep. of Germany, assignors to Bayer AG, Leverkusen, Fed. Rep. of Germany

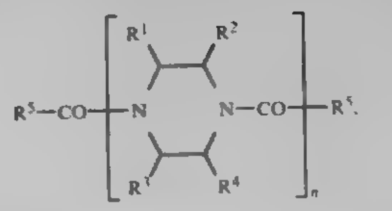
Filed Nov. 17, 1986, Ser. No. 931,353

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1985, 3542230

Int. Cl.⁴ C08G *63/62;* C09K *3/00;* C07D *241/04*

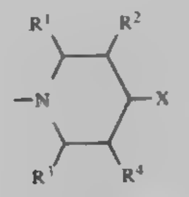
U.S. Cl. 528—369 **6 Claims**

1. Process for preparing an oligomeric poly(carboxy-piperazine) compound of the formula (I)

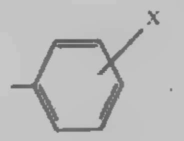


(I)

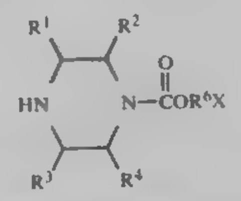
in which
R¹, R², R³, and R⁴ independently of one another stand for hydrogen, C_1–C_6-alkyl, C_5–C_8-cycloalkyl, C_6–C_{10}-cycloalkylalkyl, C_6–C_{10}-aryl and C_7–C_{14}-aralkyl,
R⁵ stands for



wherein R^1–R^4 has the meaning indicated in formula (I), and for

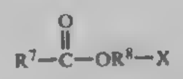


wherein
X stands for hydrogen, —COOH, —COO(C_1–C_4-alkyl), —COCl, —CH_2OH, —CN or halogen, and
n stands for the number 1, 2 or 3,
characterized in that piperazine or piperazine-N-carboxylic acid esters of the formula (II)



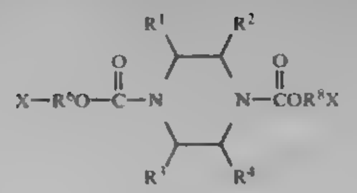
(II)

in which R^1 to R^4 have the meaning indicated in formula (I),
R^6 stands for C_1–C_{10} alkyl, C_5–C_{10} cycloalkyl, C_7–C_{17} aralkyl,
X stands for hydrogen, —COOH, —COO(C_1–C_4 alkyl), —COCl, —CH_2OH, or halogen,
are reacted in the presence of tertiary amines with carbonic acid esters of the formula (III)



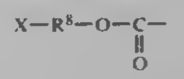
$$R^7-\overset{\overset{O}{\|}}{C}-OR^8-X \tag{III}$$

in which
R^7 denotes Cl, —OR^8—X,
R^8 denotes C_6–C_{14} aryl, C_7–C_{20} aralkyl and
X has the meaning indicated in formula (II), in an aprotic solvent which is an alcohol, a phenol, a halohydrocarbon, an aromatic hydrocarbon or an ether at temperatures of 0° to 200° C. to give N,N'-disubstituted piperazine derivatives of the formula (IV)



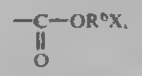
(IV)

in which
X has the meaning indicated in formula (II),
R^6 has the meaning indicated in formula (II) or for R^8,
R^8 has the meaning indicated in formula (III),
and subsequently the active ester group



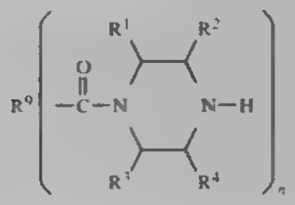
$$X-R^8-O-\underset{\underset{O}{\|}}{C}-$$

is reacted with piperazine or piperidine derivatives, or the unreacted group



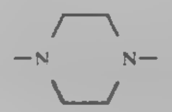
$$-\underset{\underset{O}{\|}}{C}-OR^6X,$$

wherein R^6 and X have the meaning indicated in formula (II), is split off at temperatures of 0° to 100° C. with aqueous alkaline (earth) metal solution, and the resulting piperazine derivatives of the formula (V)



(V)

in which
n, R^1 to R^4 have the meaning indicated in formula (I) and
R^9 stands for R^5 where n is 1, or for



where n is 2, is reacted with diphenyl carbonate at temperatures of 100° to 250° C. in the presence of tertiary amines.

4,758,653

THERMOSETTING COMPOSITION, METHOD OF [redacted] USING SAME, AND PROCESS FOR THE PRODUCTION OF CONDENSED, POLYNUCLEAR AROMATIC [redacted]

Sugio Otani, Kiryu, and Yoichiro Nagai, Yamato, both of Japan, assignors to Fuji Standard Research Inc., Japan

Filed Feb. 14, 1986, Ser. No. 829,518

Claims priority, application Japan, Feb. 18, 1985, 60-30055; Feb. 18, 1985, 60-30056

Int. Cl.⁴ C08G *61/00*

U.S. Cl. 528—396 **33 Claims**

1. A thermosetting composition consisting essentially of:
(i) a raw material containing one or more condensed polynuclear aromatic compounds having at least three condensed benzene rings, said raw material being selected from the group consisting of phenanthrene, anthracene, pyrene, chrysene, naphthacene, fluoranthene, perylene, picene, benzpyrenes, benzperylenes, and alkyl derivatives and mixtures thereof, and pitches having a softening point of 100°–200° C., an f_a value of at least 0.6 and an H_a value of at least 20%;
(ii) a crosslinking agent containing an aromatic compound having at least two hydroxymethyl or halomethyl groups; and
(iii) an acid catalyst;
wherein the amounts of said raw material and said crosslinking agent are such as to satisfy the following condition:

$$\frac{1.1}{n} \le \frac{W_2}{W_1} \times \frac{a}{b} \le \frac{6}{n}$$

where W_1 represents the weight of said raw material, W_2 represents the weight of said crosslinking agent, a represents the molecular weight or average molecular weight of said raw material, b represents the molecular weight or average molecular weight of said crosslinking agent and n is the number of the hydroxymethyl or halomethyl groups of said crosslinking agent.

4,758,654

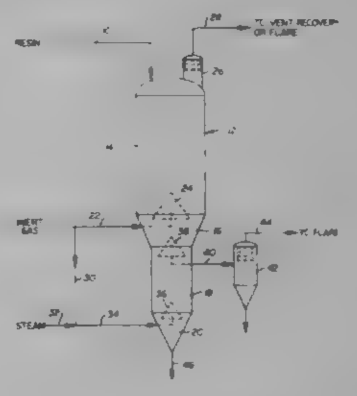
METHOD FOR TREATING RESIN IN A PURGE VESSEL

William B. Brod, New Fairfield, Conn., and Billy J. Garner, Charleston, W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Apr. 28, 1987, Ser. No. 43,597

Int. Cl.⁴ C08F *6/02*

U.S. Cl. 528—483 **11 Claims**



1. A method for removing unpolymerized gaseous monomers from a solid olefin polymer in a single purge vessel while deactivating Ziegler-Natta catalysts and organometallic catalyst residues present in said solid olefin polymer which comprises conveying said polymer in a first inert gas stream including a conveying gas, to a purge vessel having an upper zone, a lower zone and an intermediate zone connecting said upper zone to said lower zone, said upper zone having a diameter about 1.5 to 3.0 times the diameter of said lower zone, countercurrently contacting said polymer with a purge gas in said upper zone to produce a second gas stream, discharging said second gas stream containing said purge gas, said conveying gas and said gaseous monomers, from said upper zone, directing said solid olefin polymer containing said catalysts from said upper zone through said intermediate zone and into said lower zone, feeding a second purge gas containing water into said lower zone in counter current contact with said solid olefin polymer, said water being present in said second purge gas in an amount sufficient to deactivate said Ziegler Natta catalysts and organometallic catalyst present in said solid olefin polymer, discharging said second purge gas from said lower zone

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immediately below said intermediate zone, and discharging from said lower zone said solid olefin polymer.

4,758,655

SYNTHETIC POLYPEPTIDE CORRESPONDING TO A PORTION OF THE HEAT-LABILE ENTEROTOXIN OF *ESCHERICHIA COLI*, COMPOSITIONS AND METHODS THEREFOR

Richard A. Houghten, Solana Beach, Calif., assignor to Scripps Clinic and Research Foundation, La Jolla, Calif.

Continuation of Ser. No. 760,753, filed as PCT US84/02030 on Dec. 12, 1984, published as WO85/02611 on Jun. 20, 1985, abandoned, which is a continuation-in-part of Ser. No. 559,469, Dec. 12, 1983, which is a continuation-in-part of Ser. No. 455,265, Jan. 3, 1983, Pat. No. 4,545,931. This application Jul. 9, 1987, Ser. No. 71,606

Int. Cl.⁴ C07K *7/06, 7/08, 7/10*

U.S. Cl. 530—324 **19 Claims**

1. A synthetic polypeptide containing about 10 to about 35 amino acid residues corresponding in sequence to about position 35 to about position 95 from the amino-terminus of the B-subunit of the heat-labile enterotoxin of *Escherichia coli*, wherein said position numbers include the 21 residue signal polypeptide of said B-subunit.

4,758,656

NOVEL HUMAN INTERFERON-GAMMA POLYPEPTIDE DERIVATIVE

Seiga Itoh, Sagamihara; Susumu Sekine, Machida; Akiko Saito, Machida, and Moriyuki Sato, Machida, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Dec. 19, 1984, Ser. No. 683,363

Claims priority, application Japan, Dec. 26, 1983, 58-246456; Jul. 25, 1984, 59-154713

Int. Cl.⁴ C07K *13/00, 15/26;* **C12P** *21/00;* **A61K** *45/02*

U.S. Cl. 530—351 **1 Claim**

1. A derivative of human interferon-γ polypeptide which is encoded by a recombinant plasmid selected from the group consisting of pGVA-4, pGVK-13, pGWC-10, pGVL-10, pGVM-101 and pGWE-4 which are respectively carried by *Escherichia coli* FERM BP-395, 432, 397, 544, 545 and 546

4,758,657

METHOD OF PURIFYING FACTOR VIII:C

David L. Farb, Lake Ridge, Va., and Ricardo H. Landaburu, Rye Town, N.Y., assignors to Armour Pharmaceutical Company, Fort Washington, Pa.

Filed Jul. 11, 1985, Ser. No. 753,822

Int. Cl.⁴ C07K *3/20;* **A61K** *35/14, 37/02*

U.S. Cl. 530—383 **5 Claims**

1. In a process for separating Factor VIII:C from a source material containing Factor VIII:C, Factor VIII:R and other plasma proteins, having the steps of

(a) absorbing a Factor VIII:C/VIII:R and foreign protein complex from a plasma or commercial concentrate source onto particles bound to a monoclonal antibody specific to Factor VIII:R;
(b) eluting Factor VIII:C, residual Factor VIII:R and foreign proteins with a saline solution;
(c) adjusting the pH of the solution obtained in step (b) to about 6.0 to 8.0;
(d) adding calcium chloride to make said solution about 0.1 to 2M;

wherein the improvement comprises:

(e) adsorbing Factor VIII:C, Factor VIII:R and foreign proteins from said solution onto a hydrophobic interaction matrix selected from the group consisting of pentyl agarose, hexyl agarose, heptyl agarose, octyl agarose and phenyl agarose;
(f) eluting Factor VIII:R and foreign proteins from said hydrophobic interaction matrix by washing with an aqueous solution, having a pH of about 6.0 to 8.0, containing 0.1 to 0.5M $CaCl_2$ and 0.1 to 40% w/w ethylene glycol;
(g) further washing the hydrophobic interaction matrix with a buffer solution, having a pH of 6.5 to 7.2, containing 0.01 to 0.6M NaCl, 0.01 to 0.2M glycine, 0.001 to 0.020M $CaCl_2$ and 0.001 to 0.020M histidine; and
(h) eluting Factor VIII:C by washing with a water solution of 0.1 to 1% w/w of a surface active agent selected from the group consisting of $(oxy\text{-}1,2\text{-}ethanediyl)_{20}$ monododecanoate sorbitan, $(oxy\text{-}1,2\text{-}ethanediyl)_{20}$ monooctadecanoate sorbitan, $(oxy\text{-}1,2\text{-}ethanediyl)_{20}$ mono-9-octadecanoate sorbitan, α[4-1,1,3,3-(tetramethylbutyl) phenyl]-w-hydroxy $(oxy\text{-}1,2\text{-}ethanediyl)_{100}$, taurochloric acid, glycocholic acid, C_{10}–C_{16} analogs of N-dodecyl-N, N-dimethyl-3-ammonio-1-propanesulfonate, and steroid analogs of N-dodecyl-N, N-dimethyl-3-ammonio-1-propanesulfonate.

4,758,658

WATER-SOLUBLE FORMAZAN DYE

Anthony G. W. Baxter, Manchester; Stephen B. Bostock, Ramsbottom, and David Greenwood, Oldham, all of England, assignors to Imperial Chemical Industries PLC, London, England

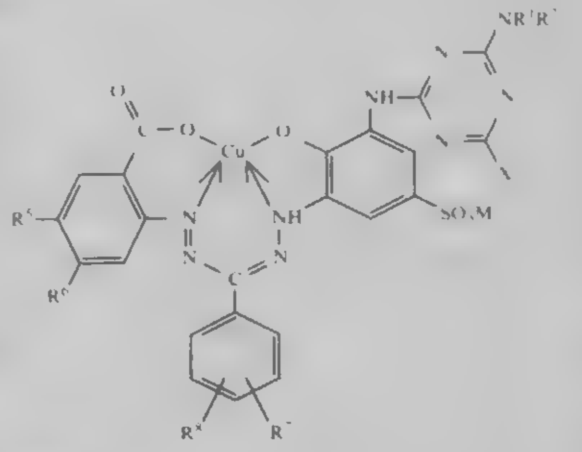
Filed Sep. 22, 1986, Ser. No. 909,848

Claims priority, application United Kingdom, Oct. 7, 1985, [illegible]

Int. Cl.⁴ C09B *56/10, 50/00;* **C09D** *11/02, 11/16*

U.S. Cl. 534—652 **8 Claims**

1. A water-soluble dye, free from cellulose-reactive groups, of the formula



1

wherein

R^1 is $-(C_aH_{2a}O)_m(C_bH_{2b}O)_nH$
R^2 is H or $-(C_aH_{2a}O)_m(C_bH_{2b}O)_nH$, or
R^1 and R^2 together with the nitrogen atom form a morpholine ring;
a and b are different and from 2 to 8
m is from 1 to 10;
n is from 0 to 9;
M is H, ammonium or a monovalent metal;
X is (i) NR^1R^2, (ii) NR^3R^4, in which R^3 and R^4 are each independently selected from H, alkyl and aryl, or (iii) a mono- or dis-azo chromophore consisting of benzene, naphthalene or mono- or bi-cyclic heteroaryl diazo and coupling components linked to the triazine nucleus through an amino linking group, N-R^9, in which R^9 is H, C_{1-4}-alkyl or phenyl;
R^5 and R^6 are selected from SO_3M and H provided at least one is SO_3M;
R^7 is H, halogen, C_{1-4} alkyl C_{1-4} alkoxy SO_3M or COOM; and R^8 is H or SO_3M.

4,758,659

HEXAKISAZO DYES

Hisashi Senshu; Sadahiko Matsubara, and Tamotsu Naito, all of Osaka, Japan, assignors to Orient Chemical Industries, Ltd., Japan

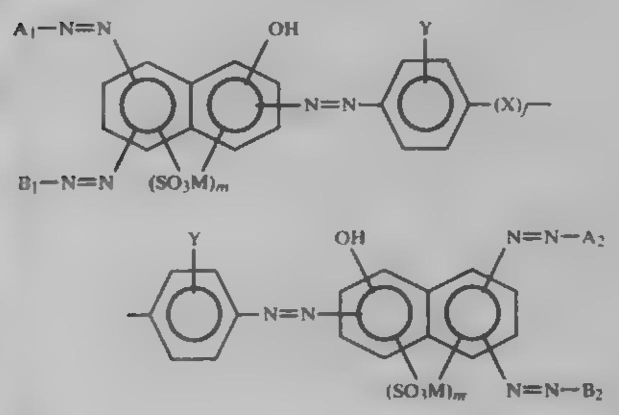
Filed Jul. 29, 1986, Ser. No. 891,571

Claims priority, application Japan, Aug. 1, 1985, 60-170390

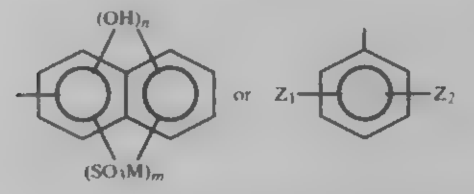
Int. Cl.⁴ C09B *31/30, 33/18, 35/64;* **C09D** *11/00*

U.S. Cl. 534—679 **6 Claims**

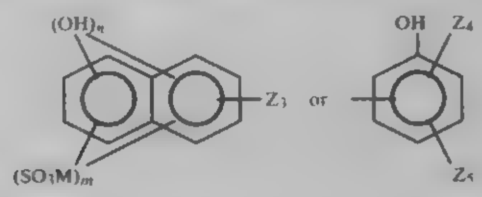
1. A hexakisazo dye represented by the formula



wherein X is —CH=CH—, —CONH—, —CRH— (wherein R is phenyl which is unsubstituted or substituted by H or a sulfonic acid group), $-SO_2-$ or —O—; Y is H, CH_3, OCH_3, Cl or SO_3M; A_1 and A_2 are each



(wherein Z_1 is H, Cl, CH_3, OH OCH_3, OC_2H_5 or SO_3M, and Z_2 is H, CH_3, NO_2 or COOM); B_1 and B_2 are each



wherein Z_3 is H, OH, NH_2, Cl or COOM, Z_4 is H, Cl, CH_3, OH, OCH_3, NH_2, COOM or SO_3M, and Z_5 is H, C_1–C_4 alkyl or OH); M is H, Na, K, Li or NH_4; f is 0 or 1; m is 0, 1 or 2; and n is 0, 1 or 2.

4,758,660

CRYSTALLINE ERLOSE

Kanou Takeuchi; Shuzo Sakai, and Toshio Miyake, all of Okayama, Japan, assignors to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan

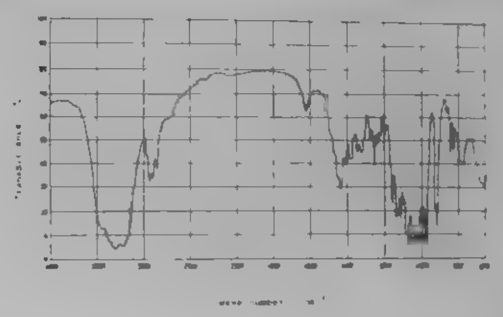
Filed Oct. 11, 1985, Ser. No. 786,823

Claims priority, application Japan, Oct. 24, 1984, 59-223378

Int. Cl.⁴ C07H *1/00, 3/00, 1/06;* **C07G** *17/00*

U.S. Cl. 536—1.1 **4 Claims**

1. A crystalline erlose hydrate, which gives predominant diffraction angles (2θ) of 11.2°, 15.1°, 15.9°, 21.7°, 22.3°, and 24.7° upon x-ray powder diffraction analysis with CuKα ray.



2. A crystalline erlose, which gives predominant diffraction angles (2θ) of 11.0°, 11.7°, 20.1°, 21.0°, 23.3°, and 23.6° upon x-ray powder diffraction analysis with CuKα ray.

4,758,661

CHIRAL SYNTHESIS OF (+)-TRANS-1A,2,3,4A,5,6-HEXAHYDRO-9-HYDROXY-4-PROPYL-4H-NAPHTH[1,2-B]-1,4-OXAZINE

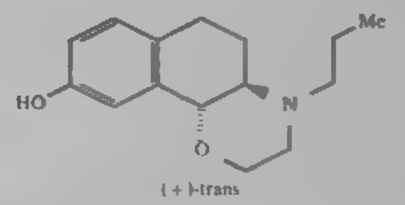
David G. Melillo, Scotch Plains; David J. Mathre, Edison, and Robert D. Larsen, Monmouth Junction, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jun. 24, 1986, Ser. No. 877,816

Int. Cl.⁴ C07D *265/34*

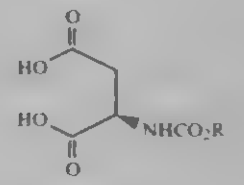
U.S. Cl. 544—101 **1 Claim**

1. A process for the preparation of the compound of formula:



which comprises the steps of:

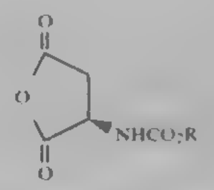
(a) treatment of D-aspartic acid with a lower alkyl haloformate to yield compound 1



1

wherein R is C_{1-3} alkyl;

(b) treatment of 1 with oxalyl chloride, trifluroacetic anhydride or ketene to yield compound 2



2

(c) treatment of 2 with 2-chloroanisole in the presence of a Friedel-Crafts catalyst to yield 3

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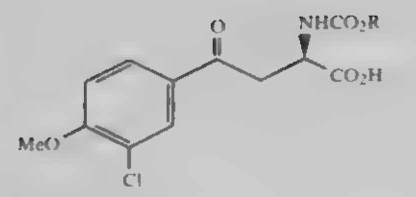
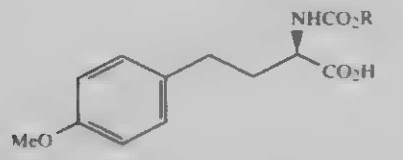


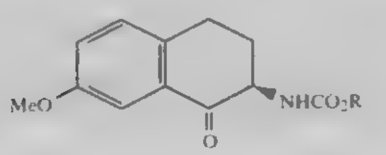
3

(d) treatment of 3 with hydrogen in the presence of a noble metal catalyst to yield 4;



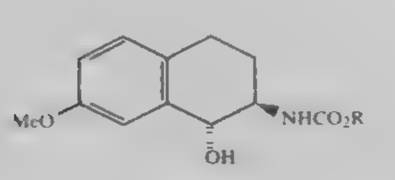
4

(e) treatment of 4 with a Friedel-Crafts catalyst to yield 5;



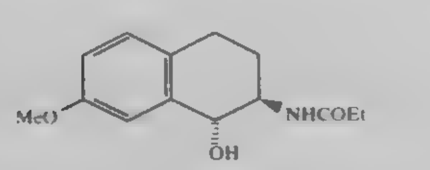
5

(f) treatment of 5 with a reducing agent by slow addition of 5 to a solution of sodium bis(methoxyethoxy) aluminum hydride in an aromatic solvent at −5° to +5° C. to yield 6.



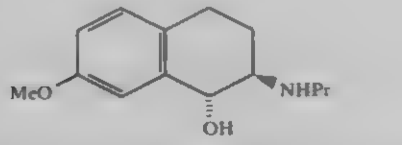
6

(g) treatment of 6 with alkali to remove the N-alkoxycarbonyl group followed by propanoylation to yield 7;



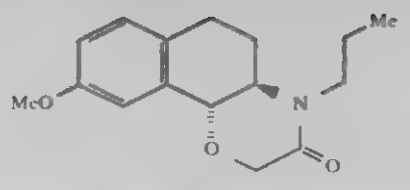
7

(h) treatment of 7 with a reducing agent to yield 8;



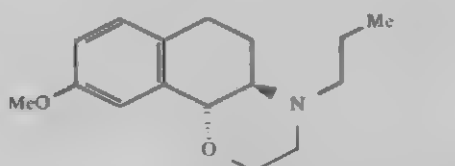
8

(i) treatment of 8 with a haloacetyl halide and a weak base followed by treatment with a strong base to produce 9;



9

(j) treatment of 9 with a reducing agent to yield 10;



10

(k) treatment of 10 with boron tribromide or methionine methanesulfonate to yield 1.

4,758,662

PURIFICATION OF CAFFEINE

Pierre Hirsbrunner, Corseaux, and Blaise Pavillard, Fribourg, both of Switzerland, assignors to Nestec S. A., Vevey, Switzer-[redacted]

Continuation of Ser. No. 727,219, Apr. 25, 1985, abandoned, which is a continuation of Ser. No. 479,791, Mar. 23, 1983, Pat. No. 4,531,003, which is a continuation of Ser. No. 254,100, Apr. 14, 1981, abandoned. This application Feb. 13, 1987, Ser. No. 15,549

The portion of the term of this patent subsequent to Jul. 23, 2002, has been disclaimed.

Int. Cl.^{4} C07D *473/12*

U.S. Cl. 544—275 **13 Claims**

1. A process for purifying caffeine having impurities which comprises the steps of:

(a) preparing an aqueous solution of caffeine having impurities, wherein the solution has a pH of at least 6.5;

(b) adding a reducing agent to the solution, the reducing agent being non-reactive with caffeine and being, in its oxidized form, soluble in the solution, to reduce and be oxidized by the impurities and then recrystallizing and removing caffeine from the solution; and then

(c) extracting the solution with a substantially water-immiscible solvent for removing caffeine remaining in the solution whereby a solvent phase containing extracted caffeine and an aqueous phase are formed, separating the solvent phase from the aqueous phase and evaporating the solvent from the extracted caffeine.

4,758,663

ISOINDOLINE COMPOUND

Hans Scherer, Weisenheim; Wolfgang Lotsch, Beindersheim, and Gustav Bock, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

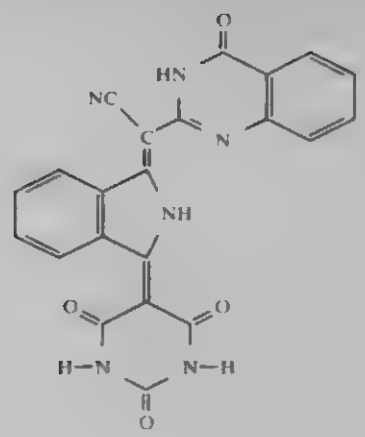
Continuation of Ser. No. 971,060, Dec. 19, 1978, abandoned. This application Apr. 18, 1983, Ser. No. 486,010

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1977, 2757982

Int. Cl.^{4} C07D *403/14*

U.S. Cl. 544—284 **1 Claim**

1. An isoindoline compound of the formula:



4,758,664

PROCESS FOR THE PREPARATION OF LINEAR QUINACRIDONES

Ernst Spietschka, Idstein, and Frank Prokschy, Frankfurt am Main, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Ger-[redacted]

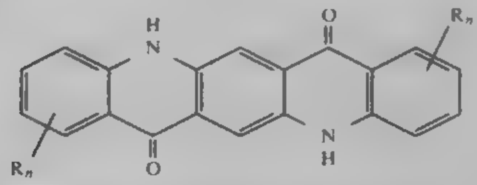
Filed May 1, 1986, Ser. No. 858,434

Claims priority, application Fed. Rep. of Germany, May 3, 1985, 3515875

Int. Cl.^{4} C09B *48/00*

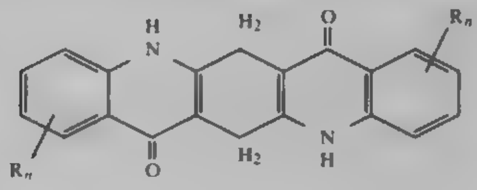
U.S. Cl. 546—49 **11 Claims**

1. A process for the preparation of linear quinacridones of the formula (1)



(1)

in which R denotes a hydrogen, fluorine, chlorine or bromine atom or a C_1–C_6-alkyl, C_1–C_3-alkoxy or phenyl group or a fused benzene ring or a phenylamino or phenoxy group which can be substituted on the aromatic nucleus by fluorine, chlorine or bromine atoms or C_1–C_4-alkyl groups, and n denotes a number from 0 to 2, it being possible, in the event that $n \neq 0$, for the substituents R present on the same benzene ring or on the two benzene rings to be identical or different, by the oxidation of linear 6,13-dihydroquinacridones of the formula (2)



(2)

in which R and n have the meanings mentioned above, which comprises heating, at temperatures from about 180° C. to about 280° C., 1 mole of a compound of formula (2) with 1 to 2 moles of iodine in a high-boiling organic solvent which is inert towards the reactants.

4,758,665

PROCESS FOR PREPARING HIGH-HIDING GAMMA-MODIFICATION OF UNSUBSTITUTED LINEAR TRANSQUINACRIDONE

Ernst Spietschka, Idstein, and Adolf Kroh, Selters, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 662,179, Oct. 18, 1984, abandoned. This application Nov. 13, 1986, Ser. No. 930,981

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1983, 3338806

Int. Cl.^{4} C09B *48/00*

U.S. Cl. 546—49 **15 Claims**

1. In a process for preparing the high-hiding form of the γ-crystal modification of unsubstituted linear transquinacridone having improved tinctorial strength and producing a coating of higher gloss, which process includes (a) cyclizing 2,5-diphenylaminoterephthalic acid, in highly concentrated polyphosphoric acid or in acid polyphosphoric acid ester, to obtain essentially the quinacridone in its α-modification; (b) hydrolyzing the resulting quinacridone melt obtained in step (a); (c) extracting the quinacridone obtained in step (b) with aqueous alkali, and (d) finishing the thus-isolated quinacridone, the improvement which comprises the further step of providing the presence of 0.5 to 10 percent by weight, based on the weight of the quinacridone, of a surface-active agent component during at least one of said steps (a), (b), (c), and (d), said surface-active agent component being a cationic quaternary ammonium compound; a cationic quaternary phosphonium compound; a nonionic colphony derivative; or combinations of said cationic compounds and nonionic compounds; provided, that if a said surface active component is present during said step (d), the same or a different one of said surface active components is present during at least one other of the remaining three steps (a), (b) or (c).

4,758,666

PROCESS FOR THE PREPARATION OF AN APOVINCAMINOL DERIVATIVE

János Galambos; Tibor Keve; Béla Stefko; György Fekete; Béla Zsadon; Anna Kassai née Zieger, and Klára Horváth née Otta, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar R.T., Budapest, Hungary

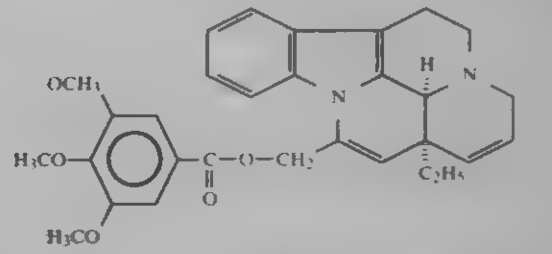
Filed May 9, 1986, Ser. No. 861,550

Claims priority, application Hungary, May 10, 1985, 1758/85

Int. Cl.^{4} C07D *461/00*

U.S. Cl. 546—51 **4 Claims**

1. A process for preparing a compound of the Formula



(I)

or a pharmaceutically acceptable acid addition salt thereof, which comprises the steps of:

(a) selectively acylating a compound of the Formula (III)

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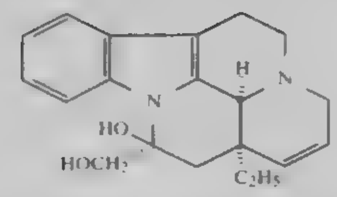
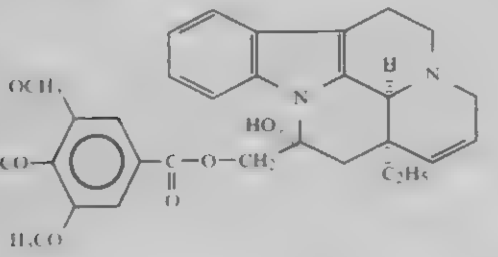


(III)

with an equivalent amount of trimethoxybenzoyl chloride in the presence of dimethylaminopyridine and triethylamine to obtain a compound of the Formula (IV)



(IV)

and,

(b) dehydrating the compound of the Formula (IV) with a mixture of formic acid and acetyl chloride to yield the compound of the Formula (I), and in the case where the Formula (I) compound is to be obtained in the form of a pharmaceutically acceptable acid addition salt, converting the compound of the Formula (I) to said pharmaceutically acceptable acid addition salt with a pharmaceutically acceptable acid

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4,758,667
PROCESS FOR THE PREPARATION OF 2-(IMIDAZOLIN-2-YL)-3-PYRIDINE- AND -3-QUINOLINECARBOXYLIC ACIDS

Henry Szczepanski, Wallbach, and Dieter Dürr, Bottmingen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

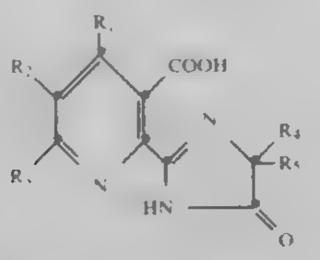
Filed Feb. 5, 1987, Ser. No. 11,077

Claims priority, application Switzerland, Feb. 10, 1986, [redacted]

Int. Cl.⁴ C07D *401/02*

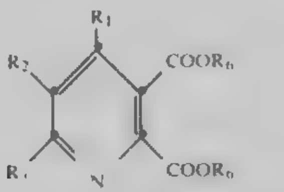
U.S. Cl. 546—167 **15 Claims**

1. A process for the preparation of a 2-(imidazolin-2-yl)-3-pyridine- or -3-quinolinecarboxylic acid of formula I



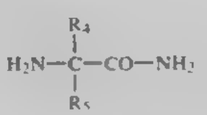
(I)

wherein R_1 is hydrogen or C_1–C_4alkyl, R_2 is hydrogen, halogen, C_1–C_4alkyl, C_1–C_4hydroxyalkyl, C_1–C_4alkoxy, phenyl or phenyl-C_1–C_4-alkyl, or phenyl or phenyl-C_1–C_4-alkyl, each substituted by one C_1–C_4alkyl, C_1–C_4alkoxy or halogen, R_3 is hydrogen, C_1–C_4alkyl, phenyl, phenyl-C_1–C_4-alkyl, or phenyl or phenyl-C_1–C_4-alkyl, each substituted by one C_1–C_4alkyl, C_1–C_4alkoxy or halogen, R_2 and R_3 together are 1,3-butadienylene which can be substituted by halogen, C_1–C_4alkyl, C_1–C_4alkoxy, C_1–C_4haloalkyl, C_1–C_4alkylsulfonyl, nitro, cyano, phenyl, phenoxy, or phenyl or phenoxy, each substituted by one C_1–C_4alkyl, C_1–C_4alkoxy or halogen, and R_4 and R_5 are each independently of the other C_1–C_4alkyl, which process comprises reacting a 2,3-pyridine- or 2,3-quinolinedicarboxylic acid ester of formula II



(II)

wherein R_1, R_2 and R_3 are as defined for formula I, and R_6 is C_1–C_8alkyl, phenyl or C_1–C_4phenylalkyl, with a 2-aminoalkanecarboxamide of formula III



$$H_2N-\underset{R_5}{\overset{R_4}{C}}-CO-NH_2$$

(III)

wherein R_4 and R_5 are as defined for formula I, in an inert solvent and in the presence of a strong base, at a temperature in the range from room temperature to the reflux temperature of the reaction mixture, dissolving the resultant salt of 2-(imidazolin-2-yl)-3-pyridine- or -3-quinolinecarboxylic acid of formula I in water, adjusting the pH of the aqueous solution to 1.5–4.5, and isolating the free 2-(imidazolin-2-yl)-3-pyridine- or -3-quinolinecarboxylic acid of formula I.

4,758,668
3-(PIPERIDINYL)- AND 3-(PYRROLIDINYL)-1H-INDAZOLES

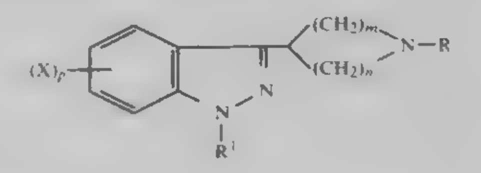
Joseph T. Strupczewski, Flemington, N.J., assignor to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Division of Ser. No. 37,194, Mar. 19, 1987, Pat. No. 4,710,573, which is a division of Ser. No. 811,090, Dec. 19, 1985, Pat. No. 4,670,447, which is a continuation-in-part of Ser. No. 694,198, Jan. 23, 1985, abandoned, which is a continuation-in-part of Ser. No. 679,662, Dec. 7, 1984, abandoned, which is a continuation-in-part of Ser. No. 525,088, Aug. 22, 1983, abandoned. This application Sep. 30, 1987, Ser. No. 102,684

Int. Cl.⁴ C07D *401/14, 403/14*

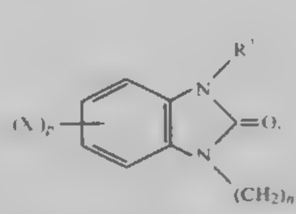
U.S. Cl. 546—199 **1 Claim**

1. A compound of the formula

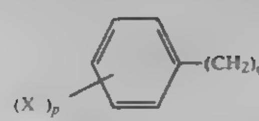


I

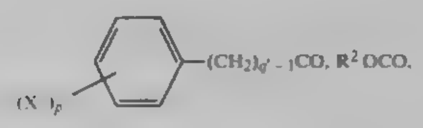
wherein R is

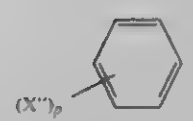


R^1 is hydrogen, loweralkyl, loweralkenyl, lowercycloalkyloweralkyl,

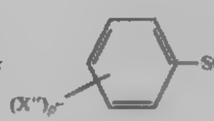


diloweralkylaminoloweralkyl, cyano, cyanomethyl, formyl, loweralkanoyl, hydroxymethyl, hydroxyloweralkyl, lowercycloalkylloweralkanoyl, loweralkoxycarbonylloweralkyl,

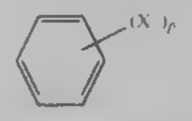




, or



R^2 is loweralkyl, 2,2,2-trichloroethyl, phenyl or



R^3 is hydrogen or loweralkyl; X,X′ and X″ are independently hydrogen, halogen, loweralkyl, loweralkoxy, loweralkanoyl, loweralkylthio, cyano, carbamoyl, hydroxy, nitro, amino or trifluoromethyl; m is 2 or 3, n is 1 or 2, and the sum of m and n is 3 or 4; n′ is 2 or 3; p,p′ and p″ are independently 1 or 2 except when X″ is halogen, p″ is 1 through 5; q′ is 1,2,3 or 4; the optical antipode thereof; or the pharmaceutically acceptable salt thereof.

4,758,669
4-(NITRONE ARYL) DIHYDROPYRIDINES

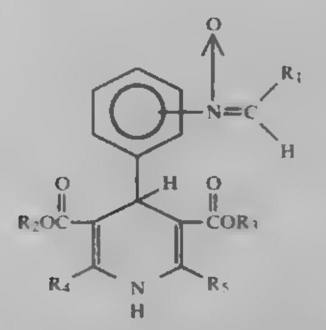
Carl R. Johnson; John D. Taylor, both of Detroit; Kenneth V. Honn, Grosse Pointe Woods, all of Mich., and Soan Cheng, East Palo Alto, Calif., assignors to Radiation Oncology Center Research and Development Corporation, Detroit, Mich.

Filed May 5, 1986, Ser. No. 859,694

Int. Cl.⁴ C07D *211/90, 401/12, 405/12, 409/12*

U.S. Cl. 546—263 **14 Claims**

1. A 4-(nitrone aryl)dihydropyridine compound of the formula.



wherein R_1 is selected from substituted and unsubstituted aryl groups and carbon attached substituted and unsubstituted heterocyclic groups selected from the group consisting of thienyl, furyl, pyridyl and pyrrolyl, wherein the substituted aryl and substituted heterocyclic groups are substituted with groups selected from chloro, nitro, methyl and trifluoromethyl groups and wherein R_2 and R_3 are selected from lower alkyl and alkoxy (lower alkyl) and wherein R_4 and R_5 are lower alkyl.

4,758,670
MICROBICIDAL AND GROWTH-REGULATING COMPOSITIONS

Urs Müller, Münchenstein; Hermann Rempfler, Ettingen, and Hans Tobler, Allschwil, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jan. 4, 1984, Ser. No. 567,998

Claims priority, application Switzerland, Jan. 10, 1983, 112/83

Int. Cl.⁴ C07D *249/08;* **A01N** *43/64*

U.S. Cl. 548—262 **2 Claims**

1. 1-(4-Fluorophenoxy)-2-tert.-butyl-2-hydroxy-3-fluoro-3-(1H-1,2,4-triazol-1-yl)-propane.

2. 1-(4-Chlorophenoxy)-2-tert.-butyl-2-hydroxy-3-fluoro-3-(1H-1,2,4-triazol-1-yl)-propane.

4,758,671
WATER-SOLUBLE CATION-ACTIVE [redacted]

Drahomír Dvorský; Karel Čerovský; Jiří Lukáč, all of Dvůr Králové nad Labem, and Jaromír Socha, Pardubice, all of Czechoslovakia, assignors to Vyzkumny ustav textilniho zuslechtovani, Dvur Králové nad Labem, Czechoslovakia

Continuation-in-part of Ser. No. 738,595, May 28, 1985, abandoned. This application Jan. 14, 1987, Ser. No. 3,111

Claims priority, application Czechoslovakia, May 28, 1984, 3987-84; Jun. 7, 1984, 4316-84

Int. Cl.⁴ C07D *233/60;* **C09B** *67/10*

U.S. Cl. 548—341 **2 Claims**

1. A water-soluble cation-active polyelectrolyte of the formula

$$[R_1—A—B—(—R_2)_x]m^{+} \cdot m/rX^{r-}$$

wherein,

r is an integer of 1–3,

m is an integer of 1–5,

x is an integer of 1 or 2,

X is selected from an anionic residue of a strong inorganic acid and a strong organic acid,

A is defined as $—CH_2—CHOH—CH_2—M^{+}—CH_2—CHOH—CH_2—$,

M is a heterocyclic imidazole residue,

B is selected from the group consisting of $—[NR_3—(CH_2)_n]_s—NR_4—$ and $—[NR_4—(CH_2)_n]_s—NR_3—$ when x=1 and $=[N—(CH_2)_n]_s—NR_4—$, $—[NR_3—(CH_2)_n]_s—N=$, $=[N—(CH_2)_n—NR_3]_s—$, and $—[NR_4—(CH_2)_n—N]_s=$, when x=2,

R_1 is selected from the group consisting of Cl^-, —OH, and H—B—,

R_2 is selected from the group consisting of a hydrogen, —A—OH, —A—Cl, —A—B—H, and —A—B—A—R_1,

R_3 and R_4 are each selected from the group consisting of a hydrogen and an alkyl group having 1 to 4 carbon atoms,

n is an integer of from 2 to 10, and

s is an integer of from 1 to 4.

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4,758,672
PROCESS FOR PREPARING NAPHTHENIC ACID 1,2-IMIDAZOLINES

Sam Ferguson, Sugar Land, and Darrel D. Reese, Richmond, both of Tex., assignors to Nalco Chemical Company, Naperville, Ill.

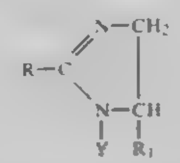
Filed May 18, 1987, Ser. No. 51,877

The portion of the term of this patent subsequent to May 20, 2003, has been disclaimed.

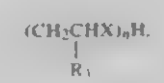
Int. Cl.⁴ C07D *233/18, 233/10, 233/16*

U.S. Cl. 548—347 1 Claim

1. A method of producing the naphthenic acid 1,2-imidazoline having the formula

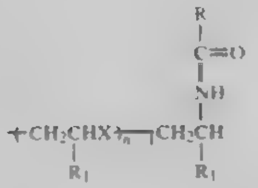


where R is the hydrocarbon portion of a petroleum or a petroleum fraction naphthenic acid, Y is H,



$$(CH_2\underset{\substack{|\\R_1}}{C}HX)_nH,$$

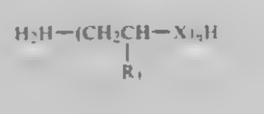
or



R_1 is H or Me

X is chosen, at each occurrence, from O or NH, and

n is a number having the value of 1–9 which comprises reacting an amine of the formula



$$H_2H-(CH_2\underset{\substack{|\\R_1}}{C}H-X)_nH$$

where

R_1 is H or Me,

x is chosen, at each occurrence, from O or NH, and

n is a small whole number of from 1–10,

with a petroleum fraction containing naphthenic acid to form a salt and then heating the petroleum fraction containing the naphthenic acid amine salt to a temperature of at least 25° F. greater than the boiling point of water for a time sufficient to convert the amine salts to the 1,2 imidazoline.

4,758,673
1-ARYL-5-HALOPYRAZOLES

Reinhold Gehring, Wuppertal; Otto Schallner, Monheim; Jörg Stetter, Wuppertal; Hans-Joachim Santel, Cologne, and Robert R. Schmidt, Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

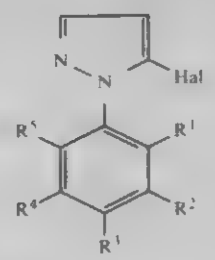
Division of Ser. No. 816,643, Jan. 6, 1986, Pat. No. 4,681,618. This application Feb. 19, 1987, Ser. No. 16,599

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1985, 3501323

Int. Cl.⁴ C07D *231/16*

U.S. Cl. 548—375 2 Claims

1. A 1-arylpyrazole of the formula



in which

Hal represents halogen,

R^1 and R^3 independently of one another represent cyano, nitro or halogen, or represent in each case straight-chain or branched alkyl, alkoxy or alkoxycarbonyl with in each case 1 to 4 carbon atoms, or represent in each case straight-chain or branched halogenoalkly with in each case 1 to 4 carbon atoms and 1 to 9 identical or different halogen atoms, or represent a radical $—S(O)_n—R^6$ and

R^2, R^4 and R^5 independently of one another and independently of R^1 and R^3 represent the same radical as R^1 and R^3 represent the same radical as R^1 and R^3 and also represent hydrogen,

and wherein

R^6 represent amino, or in each case straight-chain or branched alkyl, alkylamino, dialkylamino or halogenoalkyl with in each case 1 to 4 carbon atoms in the individual alkyl parts and, in the case of halogenoalkyl, with 1 to 9 identical or different halogen atoms and

n represents the number 0, 1 or 2.

4,758,674
WATER SOLUBLE MULTICOMPLEX OF A POLY(N-VINYL-2-PYRROLIDONE)-HALOGEN COMPLEX AND AMINOBENZOIC ACID

Eugene S. Barabas, Watchung, N.J., assignor to GAF Corporation, Wayne, N.J.

Filed May 2, 1986, Ser. No. 858,778

Int. Cl.⁴ A61K *31/40, 31/79*

U.S. Cl. 548—519 8 Claims

1. The multicomplexed product of a poly(N-vinyl-2-pyrrolidone)-halogen complex and an aminobenzoic acid wherein the complexed aminobenzoic acid has a water solubility of at least 15 weight % and said aminobenzoic acid complex is suitable for pharmaceutical administration as an aqueous solution.

4,758,675
3-THIOPHENE-SUBSTITUTED TYROSYL DIPEPTIDE AMIDES

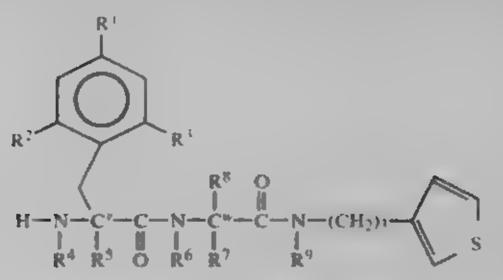
Donald W. Hansen, Jr., Chicago; Barnett S. Pitzele, Skokie; Robert W. Hamilton, Wilmette, and Michael Clare, Skokie, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation-in-part of Ser. No. 882,794, Jul. 14, 1986, which is a continuation-in-part of Ser. No. 829,266, Feb. 14, 1986, abandoned, which is a continuation-in-part of Ser. No. 765,882, Aug. 14, 1985, abandoned. This application Feb. 13, 1987, Ser. No. 14,339

Int. Cl.⁴ C07D *333/22*

U.S. Cl. 549—77 4 Claims

1. A compound of the formula:



and the pharmaceutically acceptable addition salts thereof, wherein R^1 is —OH, benzyloxy or $—OCH_3$; wherein R^2 and R^3 may be the same or different and represent straight or branched chain lower alkyl of 1–6 carbon atoms; wherein R^4, R^5, R^6, R^7, R^8, and R^9 may be the same or different and represent hydrogen or straight or branched chain lower alkyl of 1–6 carbon atoms; wherein "v" represents an asymmetric carbon atom that may be racemic or that may have the D or L configuration; and wherein "w" represents an asymmetric carbon atom that has the D configuration.

4,758,676
INTERMEDIATES FOR ANTIATHEROSCLEROTIC [redacted]

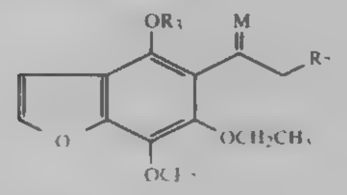
Ayako Yamashita, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 679,523, Dec. 7, 1984, Pat. No. 4,623,737. This application Aug. 29, 1986, Ser. No. 901,853

Int. Cl.⁴ C07D *307/86*

U.S. Cl. 549—370 1 Claim

1. A compound of the formula I



wherein R_3 is
- (a) $(C_1–C_5)$alkyl, or
- (b) $—C(O)—R_2$;

wherein R_2 is $(C_1–C_5)$n-alkyl,

wherein R_7 is
- (a) hydrogen,
- (b) $—C(O)—R_6$, or
- (c) $—C(OR_{20})(OR_{21})R_6$;

wherein M is divalent and is
- (a) =O, or
- (b) —H, $—OR_4$,

wherein R_4 is
- (a) $—SiR_{12}R_{13}R_{14}$,
- (b) benzyl,
- (c) benzyl substituted by 1 to 3 $(C_1–C_4)$alkyl or 1 to 3 methoxy groups, or
- (d) hydrogen;

wherein R_6 is
- (a) $(C_1–C_8)$alkyl,
- (b) $(C_2–C_8)$alkoxymethyl,
- (c) trifluoromethyl,
- (d) phenoxymethyl,
- (e) phenylthiomethyl, or
- (f) $—CH_2—S(O)_n—R_{22}$;

wherein n is 0, 1, or 2;

wherein R_{12}, R_{13}, and R_{14} are the same or different and are:
- (a) $(C_1–C_4)$alkyl, or
- (b) phenyl;

wherein R_{20} and R_{21} are the same or different and are
- (a) $(C_1–C_4)$alkyl, or
- (b) R_{20} and R_{21} taken together form a cyclic group of from 5 to 6 atoms; and

wherein R_{22} is $(C_1–C_5)$alkyl; provided that when R_3 is $(C_1–C_5)$alkyl and M is =O, R_7 is other than hydrogen

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4,758,677
CYANOBENZANO [b] PYRANS

John M. Evans, Royden, United Kingdom, assignor to Beecham Group p.l.c, England

Division of Ser. No. 198,280, Oct. 17, 1980, Pat. No. 4,391,815, which is a continuation-in-part of Ser. No. 79,560, Sep. 27, 1979, abandoned, and a continuation-in-part of Ser. No. 117,261, Jan. 31, 1980, abandoned, which is a division of Ser. No. 970,199, Dec. 18, 1978, abandoned, which is a continuation of Ser. No. 776,976, Mar. 14, 1977, abandoned. This application Nov. 17, 1982, Ser. No. 442,355

Claims priority, application United Kingdom, Apr. 2, 1976, 13536/76; Aug. 10, 1976, 33178/76; Oct. 4, 1978, 39303/78; Oct. 20, 1978, 41306/78; Jan. 10, 1979, 7900901

Int. Cl.⁴ C07D *311/78*

U.S. Cl. 549—387 1 Claim

1. 2,2-dimethyl-3,4-epoxy-6-cyano-3,4-dihydro-2H-benzo[b]pyran.

[redacted]
PREPARATION OF 7-(2,3-EPOXYPROPOXY)FLAVONE

Hans F. Schmitthenner, Honeoye Falls, N.Y., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Jul. 18, 1986, Ser. No. 887,756

Int. Cl.⁴ C07D *311/30*

U.S. Cl. 549—403 3 Claims

1. A process for the preparation of 7-(2,3-epoxypropoxy)flavone which comprises (a) contacting 7-hydroxyflavone with an epihalohydrin selected from epibromohydrin and epichlorohydrin in the presence of acetonitrile and a weak base selected from sodium carbonate and potassium carbonate, and (b) isolating 7-(2,3-epoxypropoxy)flavone from the resultant reaction mixture.

4,758,679
[redacted] 7-(3-(PROPYLAMINO)-2-HYDROXYPROPOXY)FLAVONE

Hans F. Schmitthenner, Honeoye Falls, and Edwin S. C. Wu, Rochester, both of N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed Jul. 18, 1986, Ser. No. 887,757

Int. Cl.⁴ C07D *311/30*

U.S. Cl. 549—403 4 Claims

1. In a process for preparing 7-[3-(propylamino)-2-hydroxypropoxy]flavone which comprises contacting 7-(2,3-epoxypropoxy)flavone with n-propylamine to obtain the desired 7-[3-(propylamino)-2-hydroxypropoxy]flavone and a corresponding beta-aminochalcone by-product, the improvement which comprises contacting the by-product beta-aminochalcone with maleic acid in the presence of an alcoholic solvent to convert said beta-aminochalcone to the desired 7-[3-(propylamino)-2-hydroxypropoxy]flavone.

[redacted]
PINEAPPLE KETONE CARBONATE DERIVATIVES

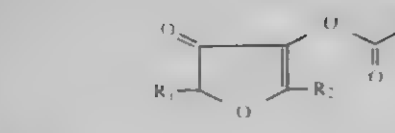
Brian Byrne, Belleville, N.J., and Louise M. L. Lawter, Goshen, N.Y., assignors to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 627,311, Jul. 2, 1984, abandoned. This application Nov. 9, 1987, Ser. No. 120,760

Int. Cl.⁴ C07D *307/60*

U.S. Cl. 549—477 8 Claims

1. A compound of the general formula,



wherein R_1 and R_2 independently are $—H$, $—CH_3$, or $—CH_2CH_3$; and R_3 is alkyl of from 1 to 10 carbons or aryl of from 6 to 10 carbons

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4,758,681

METHOD OF MAKING MOLYBDENUM/ALKYLENE GLYCOL COMPLEXES USEFUL AS EPOXIDATION CATALYSTS

Edward T. Marquis, and Howard F. Payton, both of Austin, Tex., assignors to Texaco Chemical Company, White Plains, N.Y.

Filed Dec. 30, 1986, Ser. No. 947,672

Int. Cl.⁴ C07F *11/00*

U.S. Cl. 556—57 5 Claims

1. An uncatalyzed method for preparing a catalytically active molybdenum complex which comprises:

a. mixing essentially undiluted ethylene glycol with essentially undiluted ammonium dimolybdate in a reaction vessel under ambient conditions, such that the ratio of moles of ethylene glycol to gram atoms of molybdenum ranges from about 7:1 to about 20:1 to thereby provide a solution consisting essentially of said undiluted ammonium dimolybdate in said essentially undiluted ethylene glycol,

b. heating said mixture to a temperature of about 25° C. to about 100° C. while simultaneously reducing the pressure to a pressure of about 5 to about 100 mm of Hg over a period of time ranging from about 5 to about 60 minutes with agitation while removing volatilized reaction by-products, and

c. thereafter returning said reaction mixture to ambient conditions and recovering an essentially solids free, clear catalytically active solution consisting essentially of a molybdenum/ethylene glycol complex in unreacted ethylene glycol having a molybdenum content of about 10 to about 15 wt. % of molybdenum

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4,758,682

HOMOGENEOUS COORDINATION COMPOUNDS AS OXIDATION CATALYSTS

Terrence J. Collins, Pasadena; Fred C. Anson, Altadena, both of Calif.; Stephen L. Gipson, Florissant, Mo., and Terry E. Krafft, Greeley, Colo., assignors to California Institute of Technology, Pasadena, Calif.

Division of Ser. No. 476,364, Mar. 17, 1983, Pat. No. 4,577,042. This application Nov. 1, 1985, Ser. No. 793,779

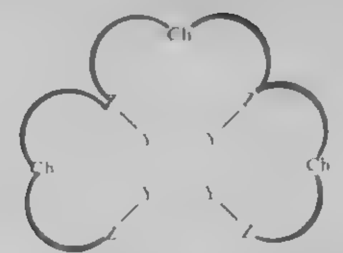
Int. Cl.⁴ C07F *5/00, 7/00, 9/00, 11/00*

U.S. Cl. 556—137 13 Claims

1. A chelate complex compound of the formula:

LMX_n

where M is a transition metal selected from Groups III to VIII or zinc, X is a monodendate ligand different from L, n is an integer from 1 to 3 and L is a tetradentate, tetraanionic ligand of the formula:



where Z is an oxidation resistant anionic group, Ch is an oxidation resistant chelate group containing 1 to 4 chain atoms and Y is H

4,758,683

SPIRODIPHOSPHOAMIDATE COMPOUNDS

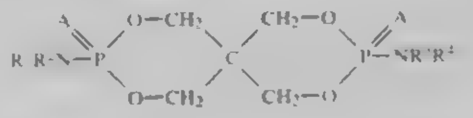
Lee Cherney, Arlington Hgts., and Yuval Halpern, Skokie, both of Ill., assignors to Borg-Warner Chemicals, Inc., Parkersburg, W. Va.

Continuation of Ser. No. 813,161, Dec. 24, 1985, abandoned. This application Sep. 25, 1987, Ser. No. 102,270

Int. Cl.⁴ C07S *9/15*

U.S. Cl. 558—077 4 Claims

1. A spirodiphosphoamidate-type composition represented by the general formula:



wherein

A and A′ are independently selected from the group consisting of oxygen and sulfur;

R^1 and R^3 are independently selected from the group consisting of hydrogen, aliphatic, oxyaliphatic, polyoxyaliphatic, cycloaliphatic and aromatic moieties; and

R^2 and R^4 are independently selected from the group consisting of C_{16} and larger aliphatic, oxyaliphatic, polyoxyaliphatic and aliphatic substituted aryl groups.

4,758,684

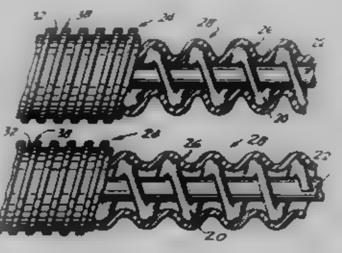
REACTION PRODUCTS OF POLYCYCLIC OLEFINS WITH P_4S_{10} AND PSX_3

Eugene H. Uhing, Omaha, Nebr., assignor to Akzo America Inc., New York, N.Y.

Filed Feb. 13, 1986, Ser. No. 829,369

Int. Cl.⁴ C07F *9/00*

U.S. Cl. 558—82 11 Claims



1. Polycyclic dithiophosphonyl halides which comprise the products of the reaction of a polycyclic olefin, P_4S_{10}, and PSX_3 wherein X is selected from the group consisting of Cl and Br, at a temperature from about 50° C. to about 250° C

ELECTRICAL

4,758,685

FLEXIBLE COAXIAL CABLE AND METHOD OF MAKING SAME

William Pote, Glenn Gardner, and Robert Landsman, Chester, both of N.J., assignors to Flexco Microwave, Inc., Port Murray, N.J.

Continuation of Ser. No. 760,753, filed as PCT US84/02030 on Dec. 12, 1984, published as WO85/02611 on Jun. 20, 1985, abandoned, which is a continuation-in-part of Ser. No. 559,469, Dec. 12, 1983, which is a continuation-in-part of Ser. No. 455,265, Jan. 3, 1983, Pat. No. 4,545,931. This application Nov. 24, 1986, Ser. No. 933,986

Int. Cl.⁴ H01B *11/18, 13/22*

U.S. Cl. 174—29 15 Claims

1. In a flexible coaxial cable having an inner conductor to which a dielectric material is secured and a convoluted outer conductor formed as a corrugated tube having a plurality of crests disposed theralong and being locked to said dielectric material; the improvement comprising a helically wound dielectric beading wound about said inner conductor, said helically wound dielectric beading having a predetermined pitch setting, the velocity of propagation associated with said coaxial cable being determined by said pitch setting and said dielectric material; and a heat shrinkable dielectric tubing surrounding said helically wound dieletric beading and shrinkably locking said helically wound beading to said inner conductor for providing a dielectric core having a constant pitch for said helically wound beading during flexing of said coaxial cable, said outer conductor being locked to said heat shrinkable dielectric tubing.

13. An improved method for making a flexible coaxial cable having an inner conductor to which a dielectric material is secured and a convoluted outer conductor formed as a corrugated tube having a plurality of crests disposed theralong and being locked to said dielectric material; the improvement comprising the steps of helically winding a dielectric beading about said inner conductor for providing a desired predetermined pitch for said helically wound dielectric beading for providing a desired predetermined velocity of propagation for said coaxial cable; inserting said inner conductor inside a heat shrinkable dielectric tubing; heat shrinking said dielectric tubing sufficiently to lock said helically wound dielectric beading to said inner conductor for providing a constant pitch for said helically wound dielectric beading during flexing of said coaxial cable, said heat shrunk dielectric tubing and said locked helically wound dielectric beading comprising a dielectric core surrounding said inner conductor; inserting said heat shrunk dielectric core inside said convoluted outer conductor; and locking said convoluted outer conductor to said dielectric core.

[illegible]

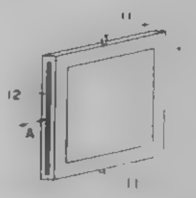
ELECTROMAGNETIC SHIELD STRUCTURE FOR BUILDING WINDOWS

Takeshi Takahashi; Masatake Nakamura; Yoshiji Yabana; Toshiyuki Ishikawa, and Koji Nagata, all of Tokyo, Japan, assignors to Shimizu Construction Co., Ltd., Tokyo, Japan

Filed May 20, 1987, Ser. No. 52,647

Int. Cl.⁴ H05K *9/00*

U.S. Cl. 174—35 MS 8 Claims



1. An electromagnetic shielding structure for a window of a building in which electrically grounded electromagnetic shielding members are used in a body of the building and at openings in the building to provide electromagnetic shielding, said structure for a window comprising:

a window sash mountable in a window opening of said building so as to be electrically connected to a grounded electromagnetic shielding member;

window frame means mounted in said window sash, said window frame means being electrically conductive and including two sheets of window glass mounted therein with a space therebetween;

said window frame means being rotatable with respect to said window sash so as to provide access to the space between said sheets of window glass for insertion thereinto and removal therefrom of an electromagnetic shielding body; and

an electromagnetic shielding body removably insertable into said window frame means between said sheets of window glass, said electromagnetic shielding body being electrically grounded to the body of the building via the window frame means when inserted therein.

4,758,687

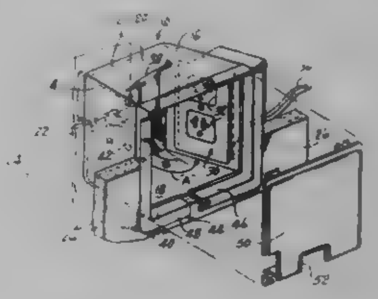
OBLIQUELY WALLED ELECTRICAL BOX

Deborah Ann Lathrop, 191 Hamilton St., Cambridge, Mass. [illegible]

Filed May 16, 1986, Ser. No. 863,852

Int. Cl.⁴ H02G *3/08*

U.S. Cl. 174—53 11 Claims



1. An enclosure apparatus adaptable for use in a building wall, to supportively house at least one electrical device, comprising:

a first and a second side wall attached to an upper and a lower wall having a rear panel there attached comprising an enclosure box;

at least one portion of each of at least two adjacent walls being obliquely disposed with respect to said rear panel; and

means for receiving an electrical device in at least one of said oblique walls.

[illegible]

WALL DUCTS THROUGH WALLS OF PRESSURE VESSELS

Matthias Aschberger, Giengen, Fed. Rep. of Germany, assignor to The Coca-Cola Company, Atlanta, Ga. and Bosch-Siemens Hausgeräte GmbH, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 768,366, Aug. 22, 1985, abandoned. This application Nov. 12, 1986, Ser. No. 930,057

Claims priority, application Fed. Rep. of Germany, Aug. 22, [illegible]

Int. Cl.⁴ F16L *17/00, 41/08;* H01B *17/40, 17/58*

U.S. Cl. 174—153 G 1 Claim

1. A wall duct assembly to be installed through the walls of storage vessel shaving a relatively high internal pressure as compared to the pressure outside the storage vessel comprising:

a substantially cylindrical ring formed in a wall area of the storage vessel, said ring having an inner wall defining a substantially cylindrical opening through said wall area;

a substantially cylindrical wall duct bushing having a flange for sealingly engaging the interior wall of the storage

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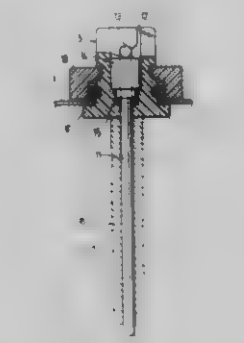
vessel in all areas contiguous to and surrounding said opening to form a liquid and gas-tight seal when said high internal pressure exceeds a predetermined level, said bushing also having an annular groove opening towards the inner wall of said ring;

a sealing gasket in said annular groove for sealingly engaging the inner wall of said ring to preclude the passage of liquid or gases into the storage vessel around said wall duct bushing; and

an axial bore extending through said wall duct bushing, said axial bore having an inboard section with a diameter slightly larger than the diameter of an electric line passing therethrough into the storage vessel and an outboard section having a larger diameter than the inboard section in the provision of a shoulder where the two sections connect, a sealing ring on said shoulder, an inner bushing in said outboard section, means for forcing said inner bushing against said sealing ring to form a liquid and gas-tight seal about said shoulder and said electric line, said electric line being bent in an L-shape with one leg of the L passing through said axial bore and the other leg of said L fitting into a bayonet joint in the outboard end of said wall duct bushing, whereby rotation of said L-shaped line about said one leg in said axial bore causes said other leg to press said inner bushing against said sealing ring



4,758,689

CARD-TYPE THIN ELECTRONIC DEVICE

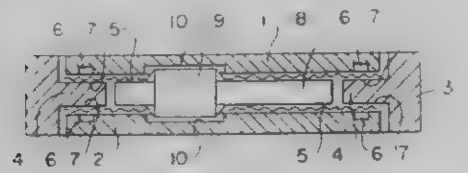
Kazuhiro Nakao; Yoshinori Oogita; Shigeki Komaki; Kazuhito Ozawa, and Katsuhide Shino, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 6, 1986, Ser. No. 893,935

Claims priority, application Japan, Aug. 9, 1985, 60-123083[U]

Int. Cl.⁴ H05K *5/06, 13/04*

U.S. Cl. 174—52 S **5 Claims**



1. A card-type thin electronic device comprising

a frame having a center opening therein,

flanges on said frame extending into said opening,

an upper panel located in said opening above upper surfaces of said flanges,

a lower panel located in said opening below lower surfaces on said flanges,

bonding means between a lower surface of said upper panel and said upper surfaces of said flanges and between an upper surface of said lower panel and said lower surfaces of said flanges so that said panels are bonded to said flanges, said bonding means includes a sheet-like thermoplastic bonding agent covering said lower surface of said upper panel and a sheet-like thermoplastic bonding agent covering said upper surface of said lower panel, and

grooves formed in the surfaces of said panels bonded by said bonding agent to said flanges located such that said bonding agent enters said grooves.

4,758,690

COORDINATE DETECTING METHOD

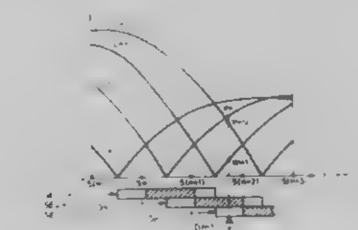
Kiyoshi Kimura, Miyagi, Japan, assignor to Alps Electric Co., Ltd., Japan

Filed Mar. 3, 1987, Ser. No. 21,148

Claims priority, application Japan, Jul. 12, 1986, 61-162933

Int. Cl.⁴ G08C *21/00*

U.S. Cl. 178—19 **4 Claims**



1. A coordinate detecting method comprising the steps of:

establishing coordinate positions of a plurality of coarse regions while taking as a reference the polarity reversing positions of a magnetic field detected when a scan signal is sent to scan an input plane equipped with a plurality of main loops made of parallel embedded conductors such that the main loops are driven in sequence by the scan signal;

specifying one coarse region, in which a coordinate designating member is located, to be interpolated;

interpolating a designated position of the coordinate designating member located within the specified coarse region; and

calculating the coordinate of the designated position on the input plane designated by the coordinate designating member on the basis of the coordinate position of the specified coarse region and an interpolation value obtained in the interpolating step,

wherein the coordinate position of the specified coarse region is obtained by accessing a ROM table storing therein a deviation amount (O_n, n=an integer) between the coordinate position of each loop (L_n) and the coordinate position of a start point of the corresponding coarse region (S_n) so as to obtain a pertinent deviation amount, and by adding it to the coordinate position of the corresponding loop (L_n).

4,758,691

APPARATUS FOR DETERMINING THE POSITION OF A MOVABLE OBJECT

Pieter De Bruyne, Zurich, Switzerland, assignor to Zellweger Uster Ltd., Uster, Switzerland

Filed Jan. 23, 1987, Ser. No. 6,145

Claims priority, application Switzerland, Jan. 23, 1986, 00265/86

Int. Cl.⁴ G08C *21/00;* **G09G** *1/00*

U.S. Cl. 178—19 **23 Claims**

1. Apparatus for determining the position of a movable object within a given boundary and relatively to fixed reference points by means of acoustic signals, comprising transmitter means and receiver means for ultrasound pulses and means

for determining a travelling time of said ultrasound pulses between the movable object and the fixed reference points,

characterized in that the transmitter and receiver means are formed by a cylindrical surface of an ultrasound transducer

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4,758,692

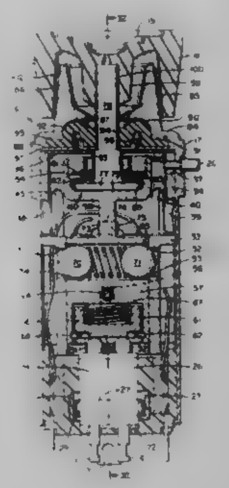
JOYSTICK TYPE CONTROL DEVICE

John O. Roeser, Barrington, Ill., and Leland L. Seghetti, Vallejo, Calif., assignors to Otto Engineering, Inc., Carpentersville, Ill.

Filed May 19, 1987, Ser. No. 52,251

Int. Cl.⁴ H01H *25/04;* **G01L** *1/22;* **G05G** *9/02*

U.S. Cl. 200—6 A **31 Claims**



1. In combination with at least one precision electrical switch control means having first actuator means for said precision electrical switch control means mounted for movement between a first switch controlling position and a second switch controlling position; second actuator means having a first portion cooperable with said first actuator means and mounted for movement along a first axis from a first position to a second position to thereby cause corresponding movement said first actuator means from said first switch controlling position to the second switch controlling position thereof, said second actuator means also having a second portion comprising flexible bar means extending in the general direction of said first axis; electrical transducer means connected to said flexible bar means and responsive to flexure of the latter along orthogonally related second and third axes to output an electrical current reflective of amount of flexure; and remote actuator means operatively connected to said flexible bar means and movable to cause lateral movement in any direction relative to said first axis to thereby cause flexure in said second portion of said flexible bar means, said remote actuator means also being movable in the direction of said first axis from a first position to a second position to cause corresponding movement of said first portion of said second actuator means along said first axis and thereby actuation of said first actuator means from the first switch controlling position toward the second switch controlling position of said at least one precision electrical switch control means

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4,758,693

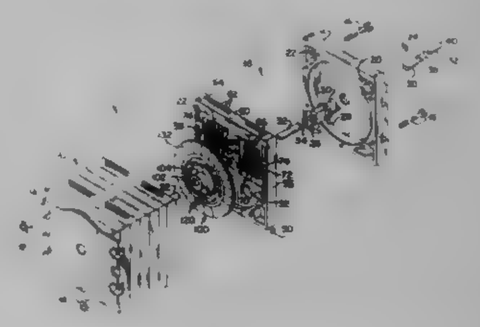
ENCODING SUBSTRATE FOR ROTARY SWITCH ASSEMBLY

Norman E. Hoffman, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 1, 1987, Ser. No. 104,619

Int. Cl.⁴ H01H *9/00, 19/58, 21/78*

U.S. Cl. 200—11 R **10 Claims**



1 A rotor for a rotary switch assembly, the rotor having at least one electrically active side, the rotary switch assembly including an actuation means for the rotor and further including a stator associated with the at least one electrically active side of the rotor, the stator including a plurality of terminals with respective brush contact portions adapted to be deflected under spring bias away from respective circuit path portions of the associated electrically active side of the rotor at least incremental distances, wherein the rotor is rotatably movable with respect to the associated at least one stator to any of a plurality of switch positions by the actuation means, the rotor comprising.

a substrate having at least a conductive surface along each major side desired to constitute an electrically active side, a profiled dielectric layer disposed over each said conductive surface, means securing said profiled dielectric layer and said substrate together, and means engageable by the actuation means of the switch assembly for rotation, each said profiled dielectric layer including a plurality of elongate arcuate groove segments along concentric circles exposing portions of said conductive substrate surface and thereby defining switch-encoding circuit paths engageable by contact sections of respective brush contact portions of the terminals of the associated stator, leading and trailing ends of each said groove segment being sloped to facilitate entry thereinto and exit therefrom of a said contact section under spring bias upon rotation of the rotor from one switch position to another by the actuation means of the switch assembly, whereby said switch-encoding circuit paths engaged by the brush contact portions of the stator terminals are portions of a continuous surface free of discontinuities proximate the circuit paths thus minimizing wearing of the brush contact portions during in-service use

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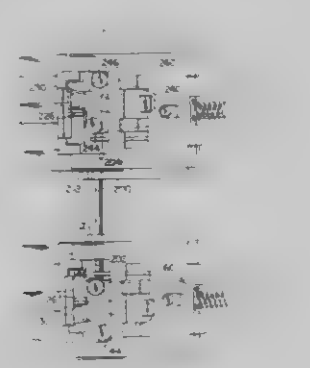
PUSH-PUSH TYPE SWITCH WITH TACTILE FEEDBACK

Robert C. Burdick, Romulus, Mich., assignor to United Technologies Automotive, Inc., Dearborn, Mich.
Filed Jul. 2, 1987, Ser. No. 69,064
Int. Cl.⁴ H01H *9/20, 13/56, 19/36*
U.S. Cl. 200—50 C 17 Claims



1 A push-push type switch which comprises
- a housing including a bottom portion with electrical contacts separated by a detent rib;
- a contactor mounted to a carrier for making electrical connections with the contacts, said contactor having a terminal which is located on one side of the detent rib when the switch is in a first position and the other side of the detent rib when the switch is in a second position;
- wherein said carrier includes an axle mounted to the housing to secure the carrier for rotational movement, a deflecting means including at least one face angled from a radius extending from the axle and extending alignment post means spaced from the axle;
- a cycler mounted within the housing and including an extending deflecting post positioned to engage the deflecting means of the carrier as the cycler is displaced causing the carrier to rotate about the axle and the contactor to traverse the detent rib to be displaced between the first position and the second position; and
- an actuator mounted for sliding movement and including biasing means for urging the actuator to its at rest position, said actuator including a push button and defining a slot for the receipt of the cycler, whereby displacement of the actuator causes displacement of the cycler.

7. The apparatus as set forth in claim 1 and further comprising a second push-push type switch positioned adjacent the push-push type switch and pushrod means extending between the switches to effect cross cancelling therebetween

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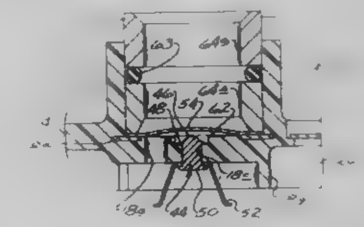
4,758,695
AUTOMOTIVE TRANSMISSION CONTROL SYSTEM AND IMPROVED LONGEVITY THEREFOR

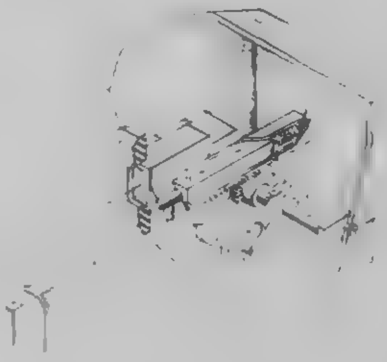
Carlton E. Sanford, E. Providence, R.I.; Leo Marcoux, Rehoboth; Douglas B. Strott, Attleboro, both of Mass., and George J. Lombardo, San Diego, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Sep. 3, 1986, Ser. No. 903,328
Int. Cl.⁴ H01H *35/34*
U.S. Cl. 200—83 P 11 Claims

1. A pressure responsive switch assembly comprising an electrically insulative base member, a generally cylindrical wall member extending from the base member defining a switch chamber, an electrical contact member disposed on the base member within and closely adjacent to the wall member, a dished shaped circular metallic diaphragm having a convex surface configuration on a face thereof and a flat annular berm portion received in the switch chamber with the berm portion engaging the electrical contact member and with the convex surface facing away from the base member, an "O" ring aligned with and received over the top of the annular berm portion, a sleeve having an outer diameter such that it is slidably receivable within the cylindrical wall member disposed in the switch chamber in engagement with the "O" ring and adapted to place a bias on the "O" ring to maintain the diaphragm in position and to form a seal, the sleeve having an end engageable with the "O" ring and that end being tapered to form a cam surface placing a force on the "O" ring in a direction which is radially outwardly as well as toward the base member when the sleeve is biased toward the base member to enhance the efficacy of the seal, the sleeve being connectable to a pressure source, and an electrically conductive center contact member mounted on the base member in alignment with the center of the diaphragm whereby upon the occurrence of sufficient pressure on the face of the diaphragm having the convex configuration the center of the diaphragm will move into electrical engagement with the center contact member



4,758,696
SAFETY RECEPTACLE FOR A TWO-PIECE DUPLEX

David T. F. Grazer, 1340 Andover Rd., Bethlehem, Pa. 18018
Filed Sep. 26, 1986, Ser. No. 911,975
Int. Cl.⁴ H01R *3/00*
U.S. Cl. 200—51.09 10 Claims



1. A safety receptacle and plug comprising:
- (a) a male plug including two parallel blades extending outward from said plug at one plug end and an elongated pin interposed between said blades and extending from said plug end parallel to said blades; and,
- (b) a female receptacle including: (i) a housing having at least one pair of hot/neutral slots encased therein and adapted to receive said male plug's male blades;
- (ii) a sleeve located in said housing, said sleeve having two ends and four sides and including at one sleeve end an extension to abut said pin when said plug's blades are received by said receptacle;
- (iii) a nonconductive tensioned rack including a spring for tensioning, said rack in linear alignment to and abutting one of said sleeve's sides.

- (iv) a nonconductive pinion workably engaging said rack; and,
- (v) a conductive pair of pivotal arms located in a plane parallel to said hot/neutral slots, each said arm having an inner and an outer side and two ends, each said arm connected to a first arm end to an electrical source and to said pinion, each said arm's other end aligned to pivotably make electrical contact with one each of said hot/neutral slots,

so that when said male plug is inserted in said housing, said pin engages said sleeve extension and presses against said extension causing said rack to retract, whreby said pinion rotates and pivots each said arm into contact with said hot/neutral slot to thereby render said socket live, and removal of said plug, and consequently said pin, allows said spring to relax, thereby urging said rack forward to cause each said arm to pivot and discontinue contact with said slot, thereby breaking electrical contact and rendering said socket dead

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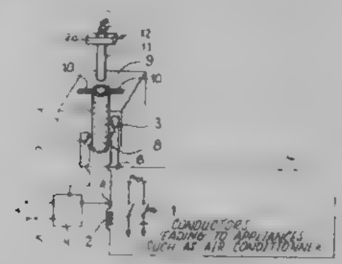
4,758,697
INTERMITTENT SUPPLY CONTROL DEVICE FOR ELECTRIC APPLIANCES OF IN PARTICULAR A HOTEL [redacted]

Patrick Jeuneu, Neuilly-sur-Seine, France, assignor to Societe Internationale de Promotion Commerciale, Paris, France
Continuation of Ser. No. 757,834, filed as PCT FR84/00247, Nov. 5, 1984, published as WO85/02054, May 9, 1985, abandoned. This application Mar. 30, 1987, Ser. No. 31,184
Claims priority, application France, Nov. 4, 1983, 83 17577
Int. Cl.⁴ H01H *27/06, 9/00;* **E05B** *65/00*
U.S. Cl. 200—61.64 6 Claims



1. A device for controlling the selective switching on and off of supply of current to an electric appliance of a premises, in particular a hotel room, said device comprising:
- a door lock including a bolt and a keeper to be mounted in a door and a door frame of an entrance to the premises such that said bolt is movable between first and second locked positions extending into said keeper and an unlocked position withdrawn from said keeper;
- an electric circuit to connect a source of electric current to the electric appliance, said circuit including a switch normally closed to allow current to be supplied from the source to the appliance and operable to be opened to interrupt the supply of current from the source to the appliance, said switch being disposed in said keeper;
- said door lock including first key-actuated means, operable only from a first side of said door lock corresponding to an exterior side of the door, for moving said bolt between said unlocked position and said first locked position, whereat said bolt extends into said keeper by an amount sufficient to open said switch and thereby interrupt the supply of current from the source to the appliance; and
- said door lock including second key-actuated means, operable only from a second side of said door lock corresponding to an interior side of the door, for moving said bolt between said unlocked position and said second locked position, whereat said bolt extends into said keeper by an amount sufficient to lock said door lock but insufficient to open said switch, such that said switch remains closed and current remains supplied from the source to the appliance

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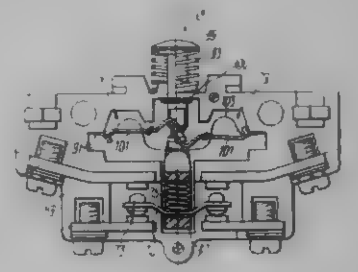
4,758,698
[redacted]

Vyacheslav G. Mironenko, Moscow; Alexandr P. Poltorak, Donetsk; Vitaly I. Schatsky, Moscow; Vladimir A. Konovtsev, Kharkov; Fedor P. Chaly, Kharkov; Vladislav F. Zagubeljuk, Kharkov, and Nikolai I. Filatov, Dagestanskaya, all of U.S.S.R., assignors to Vsesojuzny nauchno-issledovatelsky, proektno-konstruktorsky i teknologichesky institut varyvozaschischennogo i rudnichnogo elektrooborudovania, Donetsk, U.S.S.R.
PCT No. PCT/SU84/00045, § 371 Date Mar. 27, 1986, § 102(e) Date Mar. 27, 1986, PCT Pub. No. WO86/01030, PCT Pub. Date Feb. 13, 1986
PCT Filed Jul. 31, 1986, Ser. No. 852,945
Int. Cl.⁴ H01H *15/18*
U.S. Cl. 200—67 DB 5 Claims



1. A microswitch comprising a base; fixed contacts secured on said base; contact holders movably secured on said base and disposed symmetrically relative to said fixed contacts; movable contacts secured to said contact holders and operable with said fixed contacts; an actuating element comprising a drive member having an operative axis connected to the movable contacts by means of a movable contacts switching mechanism having at least two units arranged symmetrically relative to said axis of said actuating element, each of said units consisting of a lever and a spring having outer ends which, being the most remote from said axis of said actuating element, are interconnected at connection points in a manner providing for their reciprocal angular movement, like elements of said units each having inner ends having a distance from said axis of said actuating element less than the distance of the outer ends therefrom connected to said actuating element for angular movement relative thereto, other inner ends of like elements of said units carrying said movable contacts interconnected in a manner proving for their angular movement; limiters provided on said base for restricting displacement of the connection points of said lever characterized in that said contacts switching mechanism is connected at its central portion to said contact holder (72) by means of attachment elements (86) provided on at least one of such parts (72,85) so that said resilient part (85) at the portions between the connection points thereof with said contact holder (72) and its outer ends (90) defines resilient elements (81) disposed symmetrically relative to said axis of said drive member (76) at an angle to each other in any position of the drive member (76), the connection points of said resilient part (85) with the contact holder (72) being disposed between said stop elements (91) at equal distances therefrom, said integral resilient part of said mechanism for switching said movable contacts being a strip, said contact holders being secured in the central portion of said strip, said movable contacts being secured on a contact bridge which in turn is attached to said contact holder by means of said spring, said integral resilient part being connected by its central portion to knife supports of said contact holder

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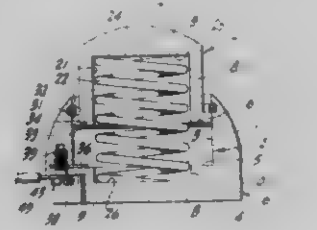
4,758,699
PRESSURE RESPONDER

Peter R. Ciriscioli, Reno, Nev., assignor to L.C.P., Inc., Reno, Nev.

Filed Mar. 10, 1986, Ser. No. 837,907

Int. Cl.⁴ H01H *13/52*

U.S. Cl. 200—159 R **3 Claims**



1. A top-accessible push button switch comprising a base bottom wall and a cylindrical base side wall upstanding from said base bottom wall and therewith defining a bottom cup closed at the bottom and open at the top, an actuator button having a top cap and a top side wall projecting from said top cap and therewith defining a top cup adapted to be disposed within said bottom cup, said top side wall having a bottom, an outstanding flange around the bottom of said top side wall adaptable for reciprocation in a predetermined path within said bottom cup against said base side wall thereof, a helical spring adapted to abut said top cup and said bottom cup, means including a split ring removably mounted on said base side wall and projecting inwardly into said bottom cup near the top thereof and into said path for limiting said reciprocation of said top cup in said bottom cup, an electrical contact on said bottom of said top side wall, and a pair of electrical conductors on said base bottom wall in position to be abutted by said contact

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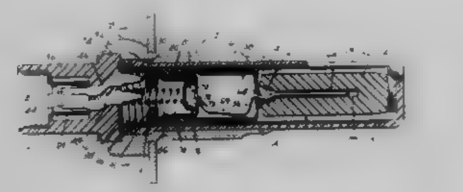
4,758,700
SWITCH CONSTRUCTION EMPLOYING CONTACT HAVING SPACED-APART CONTACT POINTS

Peter J. Lupoli, Hamden, and Donald J. Mattis, Norwalk, both of Conn., assignors to Casco Products Corporation, Bridgeport, Conn.

Division of Ser. No. 882,945, Jul. 7, 1986, Pat. No. 4,694,128. This application May 18, 1987, Ser. No. 50,790

Int. Cl.⁴ H01H *1/06*

U.S. Cl. 200—275 **2 Claims**



1. A switch construction, comprising in combination·
(a) a switch housing having within it a first, stationary contact comprising an annular concave contact surface extending about an axis,
(b) a second contact permanently mounted in said housing and cooperable with said first contact, said second contact being turnably movable and comprising an elongate wire-like member having intermediate its ends a pivotal bearing portion, and having at one end a tip disposed angularly with respect to the axis of said annular contact surface,
(c) said tip having a flattened end portion providing two spaced-apart contact points adapted to engage spaced-apart contact areas of said annular contact surface when the tip is brought into engagement therewith,
(d) the engagement of said spaced-apart contact points with the spaced apart-areas of said annular contact surface providing stability to the said second contact and minimizing its tendency to wobble, and
(e) means carried by said housing, providing a pivotal bearing engaging the pivotal bearing portion of said wire-like member to enable the latter to have simultaneous pivotal and turning movement with respect to the housing

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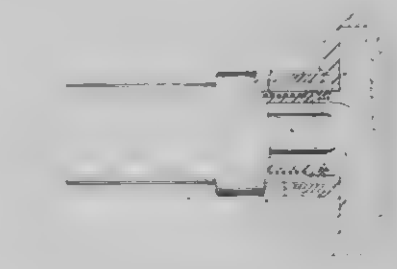
4,758,701
INDICATOR LIGHT ASSEMBLY FOR CONTROL PANEL

Robert I. Nagel, Mesa, Ariz., assignor to Allen-Bradley Company, Milwaukee, Wis.

Filed Mar. 14, 1984, Ser. No. 589,569

Int. Cl.⁴ H01H *9/18*

U.S. Cl. 200—314 **5 Claims**



1 In an indicator light assembly; a housing; a lamp disposed within said housing to emit light when energized; the improvement comprising a concave lens in alignment with said lamp for receiving the light rays from said lamp and diverging them, a second lens disposed to receive the diverging rays from said concave lens and redirect them into parallel rays to form a column of light and a viewing lens for receiving the light rays emanating from said second lens

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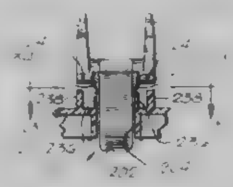
4,758,702
SWITCHING MECHANISM FOR AUTOMOTIVE HEATING AND AIR CONDITIONING SYSTEMS

John G. Cummings, Cary, Ill., assignor to Indak Manufacturing Corp., Northbrook, Ill.

Division of Ser. No. 870,438, Jun. 4, 1986, Pat. No. 4,667,068. This application Feb. 13, 1987, Ser. No. 14,930

Int. Cl.⁴ H01H *3/04*

U.S. Cl. 200—339 **9 Claims**



1. An automotive switching mechanism, comprising
a supporting panel,
a switch mounting bracket,
means for securing said bracket to the rear side of said panel,
at least one electrical switch mounted on said mounting bracket,
and an operating lever swingably confined between said bracket and said panel for operating said electrical switch,
said panel having a slot therein,
said lever having a manually operable portion extending forwardly through said slot and swingable therein,
said lever having at least one operating arm projecting rearwardly therefrom,
said electrical switch having a casing with a forwardly facing access slot for receiving said operating arm,
said switch having a switching carriage movable in said casing and operable by said arm,
said lever having rearwardly facing generally semicircular rocker shaft means thereon,
said bracket having forwardly projecting bearing means thereon with generally semicircular bearing recess means for rockably receiving said rocker shaft means,
said lever having a pair of forwardly facing tapered bearing shaft elements with generally furstoconical curvature,
said tapered bearing shaft elements being tapered in opposite lateral directions and facing laterally in opposite directions,
said panel having a pair of rearwardly projecting flexible resilient bearing flanges for resiliently engaging said tapered bearing shaft elements to retain said lever with said rocker shaft means resiliently pressed against said semicircular bearing recess means,
said tapered bearing shaft elements and said rocker shaft means having shaft axes which generally coincide,
said flexible resilient bearing flanges being laterally thin and flexible while being generally parallel with each other and generally perpendicular to said shaft axes,
said flexible resilient bearing flanges being slidably engaged with said tapered bearing shaft elements in laterally opposed relationships thereto,
said flexible resilient bearing flanges being laterally flexed by engagement with said tapered bearing shaft elements to provide a spring action for pressing said rocker shaft means against said semicircular bearing recess means.

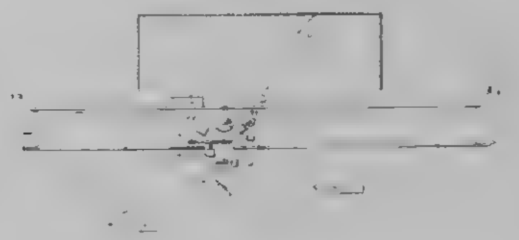
4,758,703
SYSTEM AND METHOD FOR ENCODING OBJECTS

Donald C. Drever, Weston, Conn.; Larry Nordstrom, Oviedo, Fla., and Shiv C. Dass, Albuquerque, N. Mex., assignors to Estee Lauder Inc., New York, N.Y.

Filed May 6, 1987, Ser. No. 46,625

Int. Cl.⁴ B23K *26/00*

U.S. Cl. 219—121.68 **16 Claims**



1 A system for placing a microscopically visible pattern on an object, said object having a reflectivity, said system comprising:
means for generating a beam of coherent electromagnetic radiation of a desired wavelength, said beam having an intensity and a cross-sectional area;
means for adjusting said beam intensity;
mask means for imposing said pattern on said beam;
means for transporting said object past said generating means;
means for measuring the reflectivity of said object; and
means for causing said adjusting means to adjust said beam intensity responsive to said reflectivity measurement, such that said beam intensity is insufficient to produce on said object a pattern that is visible to an unaided eye but is sufficient to produce on said object a pattern that is visible with the aid of an optical magnifying device

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4,758,704
METHOD OF PRODUCING A FOLDED EDGE

Hermann Kögel, Öhringer, Fed. Rep. of Germany, assignor to Karl Huber Verpackungswerke GmbH & Co., Öhringen, Fed. Rep. of Germany

Filed Apr. 18, 1986, Ser. No. 853,618

Claims priority, application Fed. Rep. of Germany, Apr. 22, 1985, 3514519

Int. Cl.⁴ B23K *26/00*

U.S. Cl. 219—121.64 **4 Claims**

1 A method for producing a folded edge between a body and base member of a container fabricated in a mass production line comprising; providing sheet metal for said body and base member; folding together edges of sheet metal of said body and said base member to produce a multi-layer folded edge; bonding together by laser fusion welding at least two layers of said folded edge at various point along said folded edge when said edge is at least almost finish-folded; said laser fusion welding being carried out by a laser beam directed radially outward at the folded edge at an angle ranging from a vertical position to a horizontal position.

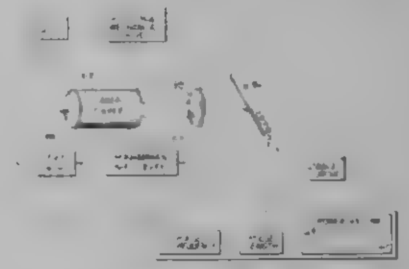
4,758,705
METHOD AND APPARATUS FOR TEXTURING A ROLLER

Gerald T. Hertzel; Gerald F. Pickens, and Matthew J. Visbaras, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 762,898, Aug. 6, 1985, Pat. No. 4,734,729. This application Oct. 19, 1987, Ser. No. 109,647

Int. Cl.⁴ B23K *26/00*

U.S. Cl. 219—121.6 **5 Claims**



1. In a method of texturing a roller, the method including the steps of directing a laser beam upon the surface of a roller so that pulsed amounts of energy from the laser impinge upon the surface of the roller to form a plurality of discrete minute bumps upon the surface, the improvement comprising
wherein the amount of energy impinging on the surface for forming each bump is varied according to the particular diametral section of the roller being textured and in accordance with a predetermined routine so that the average height of bumps formed by the laser and located on one diametral section of the roller surface is substantially

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different from the average height of bumps formed by the laser and located at a different diametral section to provide such sections with different effective roller diameters.

4,758,706
PARALLEL CORRUGATIONS FOR MATTER AND WELDER THEREOF

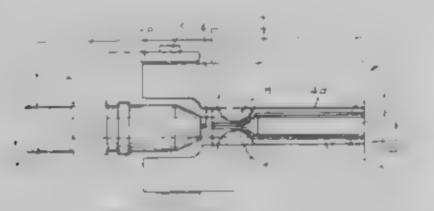
Maurice Delquié, 17, Boulevard Boignes, 58600 Fourchambault, [redacted]

Filed Jul. 9, 1986, Ser. No. 883,560

Claims priority, application France, Jul. 12, 1985, 85 10754

Int. Cl.⁴ B23K *9/225*

U.S. Cl. 219—125.1 **15 Claims**



1. A machine for forming parallel corrugations in a metal sheet having first and second oppositely facing face sides and for welding each of the formed corrugations at its longitudinal ends, comprising

a punch or knife positioned perpendicular to the second side of the metal sheet;

a bending die comprising two parallel plates each having an internal face positioned facing said punch or knife and perpendicular to the first side of the metal sheet and defining therebetween a space forming a passage within which said punch or knife may be engaged with the second side of the metal sheet;

means for imparting relative movement to said bending die perpendicularly to the first side of the metal sheet so as to engage said knife onto the second side of the metal sheet progressively between said two parallel plates of said bending die with the metal sheet between said bending die and said knife, and thus to fold the metal sheet into a U-shaped corrugation with a pair of legs formed in the metal sheet forming the sides of the corrugation and a base joining the pair of legs forming a crest of the corrugation between said two parallel plates in the die for forming a single corrugation;

said bending die including a pair of bending members at each of the lateral ends of said parallel plates, said pair of bending members projecting from the internal faces of said two parallel plates;

each of said pair of bending members of the same bending die being disposed outside of a passage for said knife and extending into said space between said parallel plates of said die, on each side of said passage, and said parallel plates defining therebetween a gap substantially equal to twice the thickness of the metal sheet between said first and second sides thereof for nipping therebetween, during the relative movement of said die and said knife and forming an end lip on each of said legs on the second side of the metal sheet;

welding means carried by said bending die for welding of each of said end lips of the metal sheet together in the immediate vicinity of a nipping zone where said end lips are nipped between said bending members; and

spherical housings formed in said internal faces of each of said two parallel plates and outside of said passage for said knife;

said bending members being formed by balls mounted fixedly in said spherical housings.

4,758,707
PULSED ARC WELDING

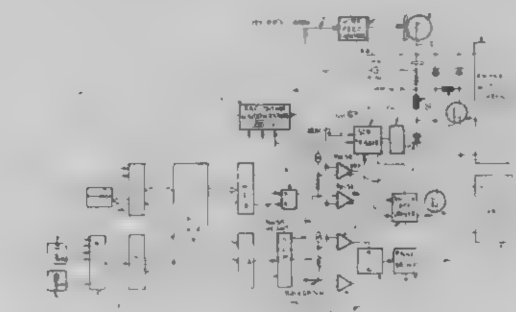
Graeme J. Ogilvie, Romsey; William K. Brougham, Novar Gardens; Gary L. Cheesman, Coromandel Valley, and David M. Leske, Park Holme, all of Australia, assignors to Welding Industries of Australia Pty., Ltd., Thomastown and Commonwealth Scientific and Industrial Research Organization, Campbell, both of, Australia

Filed Jun. 4, 1987, Ser. No. 58,361

Claims priority, application Australia, Jun. 4, 1986, PH6249

Int. Cl.⁴ B23K *9/09*

U.S. Cl. 219—130.51 **5 Claims**



1. A pulsed arc welding system, comprising:

a current pulse generating circuit for generating a current pulse; and

a background current generating circuit, including:

a DC power supply circuit adapted for connection to a load via an electrode wire,

switch means for switching current pulses generated by said current pulse generating circuit to the load,

means for detecting a lowest arc voltage across said load which occurs in a predetermined time period immediately preceding the onset of each current pulse, and

means connected to said switch means and said arc voltage detecting means, for controlling said switch means to control a pulse repetition rate such that said detected arc voltage across the load becomes constant

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4,758,708
INSECTICIDE DISPENSER WITH TEMPERATURE SENSOR

Steven T. Manchester, Limerick, Me., assignor to GTE Products Corporation, Stamford, Conn.

Filed Aug. 4, 1986, Ser. No. 892,611

Int. Cl.⁴ H05B *3/14*

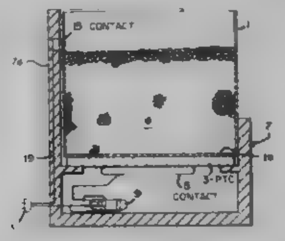
U.S. Cl. 219—272 **6 Claims**

1. An insecticide dispenser for a room, said dispenser comprising,

a housing and an electrically conductive, non-reuseable container disposed in said housing, said container being disposed upon a PTC heater, said container being adapted to receive a charge of an insecticide dispersed within a carrier, said charge requiring the application of heat to initiate a chemical reaction which produces a volatilization of the insecticide; and

a first means connecting said container to one side of power supply; and

a second means connecting said PTC heater to an other side of said power supply whereby when said container is placed upon said PTC heater, a circuit is formed, and heating of the container will be initiated by said PTC heater; and



temperature sensing means disposed adjacent to said PTC heater, thereby to disconnect said PTC heater from said circuit when a predetermined temperature is reached, said temperature sensing means being a bimetal switch designed to snap from a closed position when cold to an open position upon sensing heat at a predetermined temperature, said sensing means being arranged to stay in said open position even if the sensed temperature falls below said predetermiend temperature.

4,758,709
ELECTRIC COFFEE MAKER WITH WARMING PLATE HAVING ADJUSTABLE HEAT OUTPUT TO PREVENT OVERHEATING

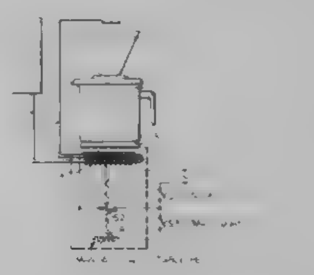
Heinz Schiebelhuth, Frankfurt am Main, and Boris Wonka, Neu-Isenburg, both of Fed. Rep. of Germany, assignors to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany

Filed Dec. 5, 1985, Ser. No. 805,338

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1984, 3447237

Int. Cl.⁴ H05B *1/02;* **A47J** *31/00;* **F24H** *1/10*

U.S. Cl. 219—283 **6 Claims**



1. In an electric coffee maker provided with an electric flow-through brewing water heater having a heating resistor controlled via a cyclically openable and closeable temperature dependent regulating switch responsive to heat flow from said heating resistor, said regulating switch being adapted to interrupt heating current flow to said heating resistor after said regulating switch has reached a first predetermined temperature until said regulating switch has cooled down to a second predetermined temperature, thus defining an interruption time period, and a warming plate heated by said heating resistor of said brewing water heater for maintaing the prepared coffee at a desired drinking temperature, the improvement comprising,

apparatus for prolonging the interruption of heating current after the opening of said regulating switch in response to heat flow from said heating resistor beyond the normal interruption time period of said regulating switch and adapted to be selectively connected in circuit with said heating resistor and said regulating switch, and

manually activated small quantity control means for selectively connecting said heating current interruption prolonging apparatus in circuit with said heating resistor and said regulating switch when it is desired to maintain a small quantity of prepared coffee at a desired temperature by means of said warming plate

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4,758,710
HEATING APPARATUS

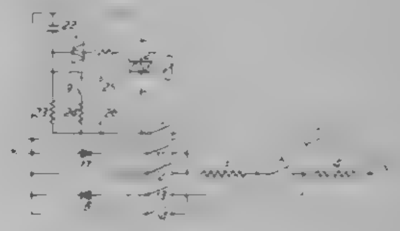
Peter W. Crossley, Havant; Bernard F. Fellerman, Hayling Island; Stephen J. Newton, Midhurst, and David Wellcome, Chichester, all of England, assignors to Thorn EMI Appliances Limited, London, England

Filed Sep. 18, 1987, Ser. No. 98,704

Claims priority, application United Kingdom, Sep. 11, 1984, 8422902

Int. Cl.⁴ F24H *3/00;* **H05B** *1/00, 3/02*

U.S. Cl. 219—446 **4 Claims**



1. A heating apparatus comprises

a plurality of lamps emissive of infra-red radiation and connectable to a power supply,

and a user-operable control circuit for selecting any one of a number of different power settings, wherein said user-operable control circuit includes,

a phase control circuit comprising a diac and a triac arrangement having a pre-determined conducting time to provide phase control of power supplied to the lamps and a resistor-capacitor network for determining said conducting time;

at least one diode,

a first switching means for selectively switching the lamps into a number of different interconnections,

and second and third switching means for selectively switching the phase control circuit and said at least one diode respectively into at least one said interconnection thereby to attain a selected power setting.

4,758,711
ELECTRONIC TRANSFORMER FOR ELECTRIC COOKTOP APPLIANCE

Thomas R. Payne, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jan. 5, 1987, Ser. No. 426

Int. Cl.⁴ H05B *1/02*

U.S. Cl. 219—486 **19 Claims**

1. An electric cooking appliance adapted for energization by a standard domestic houshold power supply characterized by an output power signal with a predetermined RMS voltage, said cooking appliance comprising:

at least one electric resistive heating unit designed for steady state energization at a maximum RMS voltage level less than the RMS voltage level of the output power signal of the standard domestic household power supply;

user actuable input selection means enabling the user to select one of a plurality of power settings including an OFF setting for said heating unit;

power control means responsive to said input selection means operative to couple power pulses of predetermined

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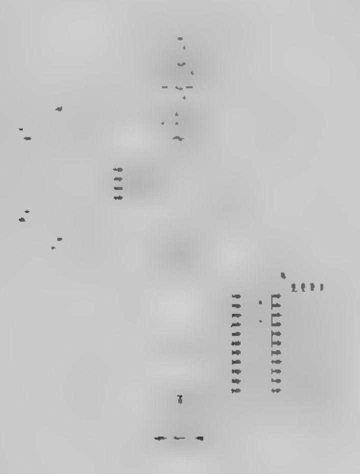
fixed duration from the standard domestic household power supply to said heating unit at one of a plurality of power pulse repetition rates, each user selectable power setting having associated with it a corresponding one of said plurality of power pulse repetition rates;

the repetition rate associated with the maximum user selectable power setting effectively applying an RMS voltage level to said heating unit corresponding to the RMS voltage level for which said heating unit is designed, whereby the RMS voltage applied to said heating unit when operating at the power level associated with the maximum user selected power setting is less than the RMS voltage level of the output power signal from the power supply

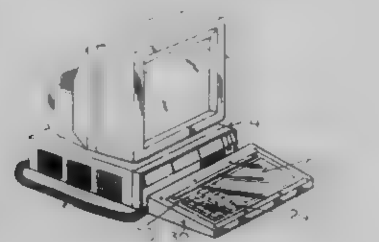


4,758,712
PROTECTIVE KEYBOARD ENCLOSURE ASSEMBLY
Charles J. Matone, Jr., R.D. #9, Box 602A, Greensburg, Pa. 15601, and Dwayne W. Altman, 209 Belmont St., North Huntingdon, Pa. 15642

Filed Aug. 27, 1987, Ser. No. 89,982

Int. Cl.⁴ G06C *7/02;* **H01H** *9/04*

U.S. Cl. 235—145 R **9 Claims**



1. A keyboard enclosure assembly for protection of a keyboard connected to a system including computer, display monitor, and related equipment, comprising:

an upper section of enclosure assembly having a thickness with top and underside surfaces and an opening extending through said thickness from said top to said underside surface, said top surface being constructed such that said opening forms a viewing window and having sidewalls extending from said underside surface;

a lower section of enclosure assembly having a thickness with top and underside surfaces suitable for holding said keyboard at rest on said top surface and having sidewalls extending from said top surface such that said upper section of enclosure assembly may be mounted over said lower section of enclosure assembly;

a transparent, flexible membrane positioned in said opening of said upper section of enclosure assembly permitting an operator to view and press keys located in said keyboard;

a holding means for securing said transparent, flexible membrane to said upper section of enclosure assembly;

a sealing means between said upper section of enclosure assembly and said lower section of enclosure assembly;

a first fastening means for securing said transparent, flexible membrane between said holding means and said upper section of enclosure assembly;

a second fastening means for securing said upper section of enclosure assembly to said lower section of enclosure assembly

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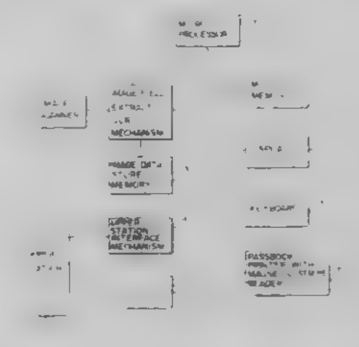
4,758,713
BANKING TERMINAL EQUIPMENT
Makoto Matsukawa, Owariasahi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 25, 1987, Ser. No. 66,202

Claims priority, application Japan, Jun. 25, 1986, 61-150246

Int. Cl.⁴ G06F *15/30*

U.S. Cl. 235—379 **4 Claims**



1. A banking terminal equipment connected to an upper station for processing a transaction slip including data input means for inputting data by use of keys and means for displaying data comprising.

means for optically reading a transaction slip on which a first data portion required to be transmitted to the upper station and a second data portion not required to be transmitted to the upper station are recorded, said first data portion being formatted to be located at a first position of said slip with respect to a read direction;

control means operative upon completion of a read operation on said first data portion by said optical read means, for displaying the data read from the first data portion on the data display means independently from completion of a read operation on the second data portion; and

means responsive to a key-in operation from the data input means for transmitting to the upper station the data displayed on the data display means.

4,758,714
POINT-OF-SALE MECHANISM
Steven R. Carlson, and Paul R. Carlson, both of 417 2nd Ave., S.E. Beach, N. Dak. 58621

Continuation-in-part of Ser. No. 915,505, Oct. 6, 1986. This application Jul. 6, 1987, Ser. No. 70,816

Int. Cl.⁴ G06K *5/00*

U.S. Cl. 235—380 **13 Claims**

1. A secured point-of-sale mechanism comprising:

(a) a closable two compartment housing having a secured portion which includes printer means and a plurality of signal devices indicating the condition of a plurality of circuits contained in said secured portion of said housing,

(b) an unsecured door portion cooperating with said secured portion for completing said two compartment housing;

(c) a monetary negotiable instrument section disposed within said unsecured portion having a first part for retaining a credit card, a second part for retaining an invoice of a point-of-sale transaction, a third part for retaining a check for a point-of-sale transaction, a fourth part for retaining any monetary negotiable instrument, a fifth part for identifying the payee of said transactions, and a sixth part for establishing the transaction selling price;

(d) a transaction price index settable to the correct sales amount purchased by a customer;

(e) a first plurality of switching mechanisms having a first part fixed in said secured portion of said housing and a second part extending into said unsecured portion of said housing to be actuated by said unsecured door portion;

(f) printer means;

(g) a second plurality of switching mechanisms having a first part fixed in said secured portion of said housing and a second part extending into said unsecured portion of said housing to be actuated by a combination of monetary negotiable instruments; and

(h) a locking mechanism connected to said plurality of switching mechanisms and disposed between said secured and unsecured portions of said housing for securing said housing against invasion as long as said plurality of switching mechanisms are actuated.

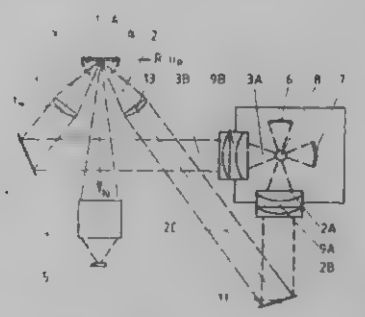
4,758,715
ILLUMINATION DEVICE FOR OPTICAL RECOGNITION AND READING HAVING CURVED MIRRORS
Peter Stamm, Radolfzell, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Fed. Rep. of Germany

Filed Apr. 11, 1986, Ser. No. 850,767

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1985, 3514014

Int. Cl.⁴ G06K *7/10, 7/14*

U.S. Cl. 235—454 **7 Claims**



1. An illuminating device for illuminating optically recognizable markings on a carrier at an illumination area and for reading the markings, comprising:

a single source of electromagnetic radiation;

a first curved mirror having a focal length and disposed on one side of said source for reflecting radiation from said source back through said source to form a first beam which includes at least some radiation emanating directly from said source;

a second curved mirror having a focal length positioned on a side of said source at a location spaced away from said first curved mirror for reflecting radiation from said source and directing it through said source to form a second beam. said second beam including at least some radiation emanating directly from said source;

a first condenser lens system on a side of said source opposite from said first curved mirror for receiving said first beam and forming it into a first substantially parallel beam;

a second condenser lens system on a side of said source opposite from said second curved lens for receiving said second beam and forming it into a second parallel beam;

a first planar mirror spaced from said first condenser lens system for redirecting said first parallel beam into a redirected beam having an axis extending to the illumination area;

a second planar mirror spaced from said second condenser lens system for receiving said second parallel beam and re-directing said second parallel beam into a second re-directed beam having an axis extending to the illumination area;

a first output lens system on said first re-directed beam for focusing said first re-directed beam onto the illumination area;

a second output lens system on said second re-directed beam for focusing said second re-directed beam onto the illumination area, said axes of said first and said second re-directed beams lying at equal selected angles to a plane containing the illumination area and on opposite sides of a normal line from the illumination area; and

detector means lying on said normal line for detecting radiation reflected from the illumination area.

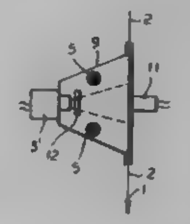
4,758,716
APPARATUS FOR EVALUATING INDICIA ON A MOVING CARRIER
Dieter Mayer, Augsburg, and Ludwig Zerle, Mering, both of Fed. Rep. of Germany, assignors to Erhardt + Leimer GmbH, Augsburg, Fed. Rep. of Germany

Filed Mar. 3, 1986, Ser. No. 835,609

Claims priority, application Fed. Rep. of Germany, Mar. 4, [illegible]

Int. Cl.⁴ G06K *7/10*

U.S. Cl. 235—470 **13 Claims**



1. An apparatus for detecting a characteristic of a moving carrier, comprising:

a pattern of marks defined by at least one phosphorescent substance in at least one identification field of said carrier;

a reader including a reading head and an evaluating or analyzing logic, said head being juxtaposed with said carrier and said carrier running past said reading head, said reading head being a line scanning CCD camera with image storage and image processor units connected thereto;

a light source at least temporarily exposing said identification marks to light and execute said marks to cause the marks to phosphoresce, said line-scanning CCD camera being arranged in a travel direction of said carrier behind said light source said reading head reading said identifica-

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tion in the phosphorescing state of said marks after the latter have been exposed to light from said source,
a clock for controlling the distance between lines scanned by said line scanning camera and provided with a counter wheel driven by said carrier and including a revolution counter providing electric timing signals for controlling said line scanning camera; and
a guide roller for guiding said carrier and driving said counter wheel

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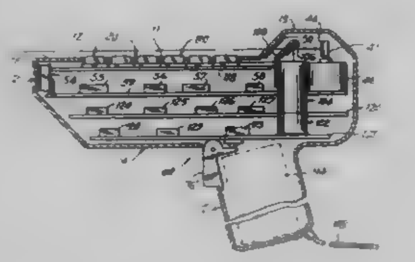
4,758,717

NARROW-BODIED, SINGLE-AND TWIN-WINDOWED PORTABLE LASER SCANNING HEAD FOR READING BAR CODE SYMBOLS

Howard M. Shepard, Great River; Edward D. Barkan, South Setauket, and Jerome Swartz, Stonybrook, all of N.Y., assignors to Symbol Technologies, Inc., Bohemia, N.Y.
Division of Ser. No. 519,523, Aug. 1, 1983, Pat. No. 4,673,805, which is a division of Ser. No. 342,231, Jan. 25, 1982, Pat. No. 4,409,470. This application Jul. 10, 1986, Ser. No. 883,923
Int. Cl.⁴ G06K *7/10*
U.S. Cl. 235—472 5 Claims

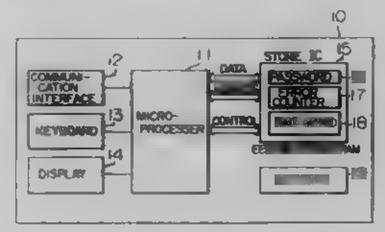


1. An entirely field-portable data collection intelligent terminal for reading bar code symbols, each in its respective turn, comprising:
(a) a light-weight, hand-held laser scanning housing normally supportable by a user in a normally non-contacting relationship with the symbols during reading thereof;
(b) means on the housing for selecting and manually entering data collection information;
(c) means in the housing for generating a laser beam;
(d) means in the housing for directing the laser beam along a light path through an outlet port of the housing to each symbol;
(e) means in the housing for repetitively scanning the directed laser beam across each symbol for reflection therefrom;
(f) means in the housing for detecting the variable intensity of each scanned laser beam reflected from each symbol, and for generating an electrical signal indicative of the detected intensity for each symbol;
(g) means in the housing for processing each electrical signal, and for generating a processed electrical signal for each symbol;
(h) means in the housing for decoding the processed signal for each symbol to be read;
(i) manually actuatable trigger means on the housing for initiating reading of each symbol upon each manual actuation of the trigger means from one state to another by the user;
(j) means in the housing for determining a successful decoding of each symbol, and for non-manually terminating the reading of each symbol upon the determination of the successful decoding thereof;
(k) means in the housing for storing data collection information,
(l) means on the housing for displaying data collection information; and
(m) means in the housing for supplying power to the terminal

4,758,718

HIGH SECURITY IC CARD WITH AN UPDATABLE PASSWORD

Kunio Fujisaki, and Akiko Iwanaga, both of Owariasahi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 18, 1986, Ser. No. 829,987
Claims priority, application Japan, Feb. 27, 1985, 60-36376
Int. Cl.⁴ G06K *19/06, 5/00*
U.S. Cl. 235—487 6 Claims



1. An IC card for use with a transaction terminal comprising
a microprocessor;
an interface for electrically communicating with said terminal;
a memory having a password registration area for registering a password and a password rewrite permission data area for storing data used to determined whether said password registered in said password registration area may be rewritten; and
a keyboard for entering said password;
said password rewrite permission data area including error count means responsive to a password rewrite request for incrementing a count number representing the number of occurrences of incorrect entries each time an incorrect password is entered into the microprocessor and permitting entry of a password to said microprocessor when said count number does not exceed a predetermined value; and wherein
said microprocessor includes determination means responsive to an output of said error counter means for receiving an entered password and for determing whether it is correct based on the registered password, and permission means responsive to said determination means for permitting entry of a new password by said keyboard to said password registration area to rewrite the registered password.

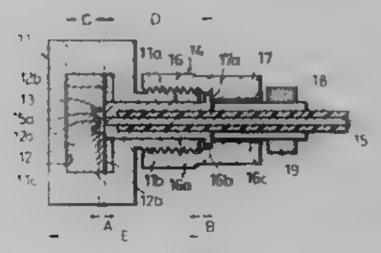
4,758,719

OPTICAL FIBER CONNECTOR HAVING SPACING GAP FOR DIMENSIONAL TOLERANCE

Hiroaki Sasaki, and Yoshinori Miyahara, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Japan
Filed Mar. 24, 1986, Ser. No. 843,710
Claims priority, application Japan, Mar. 23, 1985, 60-41649[U]
Int. Cl.⁴ H01J *5/16;* **G02B** *6/36*
U.S. Cl. 250—227 3 Claims

1. An optical fiber connector comprising:
a holding member having a front part for holding an end of an optical fiber therein and a collar part, wherein a selected length is provided between a front end surface of said front part and said collar part;
a plug in which said holding member is disposed having an internal part which abuts against said collar part of said holding member to press it in an insertion direction, and an engaging part formed on a front end of said plug forwardly of said collar part; and

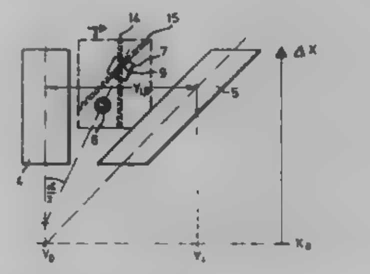
a plug engaging member having a mounting portion in which an optical element is fixed in a recess of a predetermined depth from a front engaging surface of the mounting portion, a front portion for snugly receiving said front part of said holding member, wherein said front end surface of said holding member is abutted in contact with said front engaging surface of said mounting portion such that said optical fiber end is disposed facing the optical element in said plug engaging member by a predetermined distance, and an engaged part formed on said front portion which is removably engaged with said engaging part of said plug;
wherein said length of said holding member is selected such that when said holding member is inserted in said front portion of said plug engaging member to bring said front end surface of said front part of said holding member into abutting contact with said front engaging surface of said mounting portion, a small gap (B') is provided between said collar part and said front portion of said plug engaging member which allows sufficient space in case of differences in tolerances of said parts such that said front portion of said plug engaging member never abuts against said collar part, in order to ensure that said front end surface of said holding member can always be pressed against said front engaging surface of said mounting portion by a force of engagement of said engaging part of said plug with said engaged part of said plug engaging member, whereby the optical fiber end is maintained accurately spaced opposite the optical element by said predetermined distance.



4,758,720

METHOD AND MEANS FOR MEASURING GUIDANCE ERRORS AT ONE OR MORE POINTS ALONG THE LENGTH OF A DISPLACEMENT-MEASURING SYSTEM

Karl-Eugen Aubele, Gussenstadt; Helmut Lenhof, Steinheim, and Peter Vogt, Heidenheim, all of Fed. Rep. of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim/Brenz, Oberkochen, Fed. Rep. of Germany
Filed Nov. 19, 1986, Ser. No. 932,283
Claims priority, application Fed. Rep. of Germany, Dec. 2, 1985, 3542514
Int. Cl.⁴ H01J *40/14*
U.S. Cl. 250—237 G 9 Claims

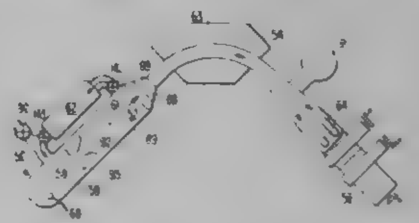


1. A displacement-measuring device for a movably guided machine part wherein an incremental correction-measurement system (3, K1, K2) is provided for the determination of guidance errors such as lateral offset or tilt (yaw) of the machine part with respect to the guidance direction (Y), characterized by the fact that the correction-measurement system contains at least one reference-mark structure comprising two straight lines which are inclined to each other and to the guidance direction, said straight lines being in spaced proximity to each other for their successively scanned recognition in the course of guided movement of the machine part, and a signal transmitter and reading head for scanning said structure in the course of guided movement in the Y direction.

4,758,721

THERMAL CYCLE RECIRCULATING PUMP FOR ISOTOPE PURIFIER

David A. Hill, Culver City, Calif., assignor to Isotope Purifiers Ltd., Palo Verdes Estates, Calif.
Filed Dec. 29, 1986, Ser. No. 946,827
Int. Cl.⁴ H01J *49/00*
U.S. Cl. 250—283 4 Claims



1. A system for the separation and purification of a selected isotope from a polyisotopic mixture which comprises in combination:
(a) am ion source having a discharge region containing means to bombard the polyisotopic mixture to produce a mixture of ionized and uncharged isotopes;
(b) a first aperture from said discharge region positioned to allow the ionized and uncharged isotopes to enter a vacuum chamber;
(c) said vacuum chamber having a plurality of walls maintained at an elevated temperature such that said uncharged isotopes are prevented from devaporizing;
(d) a thermal cycle recirculating pump connecting said vacuum chamber and said discharge region and having a selectively operable intake valve and a selectively operable exhaust valve and selectively operable heating means and selective operable cooling means;
(e) said intake valve being open and said exhaust valve being closed during a first intake phase and being reversed during a second exhaust phase;
(f) said cooling means operable during said first phase and said heating means operable during said second phase;
(g) said thermal cycle recirculating pump having said uncharged isotopes devaporize and attach on the interior wall of the thermal cycle recirculating pump during the first phase;
(h) said thermal cycle recirculating pump having said uncharged isotopes revaporize and return to the discharge region during the second phase;
(i) an extraction electrode means adjacent said first aperture to accelerate and direct said ionized isotopes toward a second aperture as a collimated ion beam;
(j) an analyzer to receive the collimated ion beam of ionized isotopes and having a means to separate the selected ionized isotope from the other ionized isotopes in the polyisotopic mixture; and,
(k) a plurality of collectors to receive the isotopes, one of said collectors positioned to receive said selected isotope and the other collectors positioned to receive the other isotopes;
wherein the selected isotope is separated and purified at a high recovery rate of the selected isotope from the polyisotopic mixture.

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4,758,722

ANGULAR RESOLVED SPECTROMETER

Robert C. G. Leckey, and John D. Riley, both of Victoria, Australia, assignors to La Trobe University, Victoria, Australia

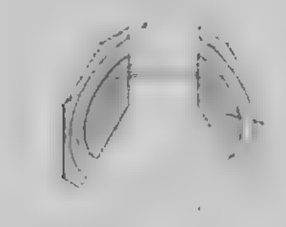
Continuation-in-part of Ser. No. 336,346, filed as PCT81/00053, May 8, 1981, published as WO81/03395, Nov. 26, 1981, abandoned. This application May 30, 1988, Ser. No. 615,445

Claims priority, application Australia, May 12, 1980, PE3501; PCT I'ntl Appl., May 8, 1981, PCT/AU81/00053

The portion of the term of this patent subsequent to Jun. 19, 2003, has been disclaimed.

Int. Cl.^{4} H01J *49/48*

U.S. Cl. 250—305 13 Claims



1. An angular resolved spectrometer capable of analyzing the energy of charged particles emitted from an analysis source and simultaneously obtaining spectra with a resolution of ±1° for a range of angles of emission up to approximately 340° in a single selected plane of emission, said spectrometer comprising

(I) an angle-defining electrode which has an axis of symmetry which is normal to said single selected plane of emission and on which the analysis source is to be mounted in the spectrometer and having an aperture which defines the said selected emission plane for the analysis source as well as a spread of angles α between $+\alpha_0$ and $-\alpha_0$ of particle trajectories on either side of the selected plane of emission to be accepted by the spectrometer, charged particles being emitted from the analysis source along particle trajectories characterized by angular coordinates designated α,β wherein α defines an angular deviation away from the plane of emission and β defines a particular direction in the plane of emission;

(II) concentric toroidal electrode sectors spaced apart to form an open-ended toroidal-contoured passageway defined by opposed surfaces of said concentric toroidal sectors and between which an electrical field can be established, said electrical field being such that charged particles of a particular energy and whose trajectories on passing through the aperture of said angle-defining electrode and entering an inlet end of the passageway between said toroidal electrode sectors at the mid point of said inlet end of said passageway lie within chosen angular bounds $-\alpha_0 \leqq \alpha \leqq +\alpha_0$ but have any value of the angle β within said range of angles of emission will be refocused in relation to the angle α on leaving an outlet end of the passageway while remaining substantially undeflected in relation to the angle β associated with each trajectory, such that the required β angular information is retained at an α focus plane and a focus of charged particles into ring form results; and

(III) a charged-particles, position-sensitive detector means for determining the angle β in said phase of emission by accepting charged particles focused at said α focus plane and registering their position of arrival in substantially focused form on said detector means to generate signal pulses such that the angle β of the charged particles in said plane of emission can be determined by measurement of the signal pulses.

4,758,723

ELECTRON SPECTROMETER

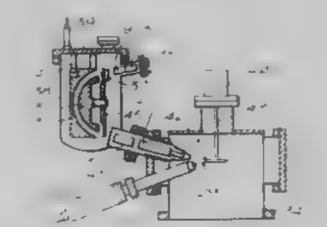
Ian R. M. Wardell, and Peter A. Coxon, both of East Sussex, United Kingdom, assignors to VG Instruments Group Limited, Crawley, United Kingdom

Filed May 18, 1987, Ser. No. 50,403

Claims priority, application United Kingdom, May 19, 1986, 8612099

Int. Cl.^{4} H01J *40/00*

U.S. Cl. 250—305 14 Claims



1. An electron spectrometer operable to produce an image of an electron emitting surface, said spectrometer comprising in sequence:

(a) means for causing electrons to be emitted from said surface;

(b) a first electrostatic lens system arranged to project at least some of said electrons onto a first diffraction plane as a Fourier transform of an electron image of at least a part of said surface;

(c) a torroidal capacitor type electrostatic energy analyzer having an object plane and conjugate thereto a first image plane, said analyzer being disposed with said object plane coincident with said first diffraction plane and being arranged to project electrons of said Fourier transform as an energy dispersed Fourier transform in said first image plane;

(d) energy selection means for transmitting electrons of said energy dispsersed Fourier transform having energies only within a selected range; and

(e) a second electrostatic lens system arranged to receive electrons transmitted by said energy selection means and therewith to project an electron image of at least a part of said surface onto a second image plane.

4,758,724

PANEL MOUNTED TOGGLE SWITCH

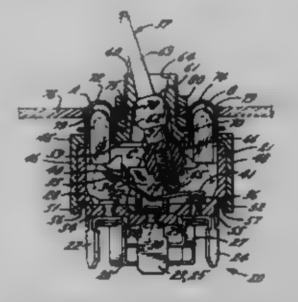
Thomas F. Osika, Valparaiso, Ind., assignor to McGill Manufacturing Co., Inc., Valparaiso, Ind.

Division of Ser. No. 730,775, May 3, 1985, Pat. No. 4,667,073. This application Feb. 13, 1987, Ser. No. 14,281

The portion of the term of this patent subsequent to May 19, 2004, has been disclaimed.

Int. Cl.^{4} H01H *9/16, 9/18*

U.S. Cl. 200—315 6 Claims



1. An electrical switching assembly adapted for displaying a plurality of operating conditions comprising, in combination:

(a) a mounting panel having inner and outer sides;

(b) an electrical toggle switch mountable on an inner side of said mounting panel;

(c) said electrical toggle switch including a box-like housing of non-conductive material having a bottom, side walls defining a perimeter of the housing, and a housing cover;

(d) a plurality of terminals fixed to said housing;

(e) a plurality of contacts connected with respective ones of said terminals;

(f) a conductive bridge having a pair of contacts;

(g) a toggle lever pivotally supported within said housing cover and having a plurality of operative positions;

(h) a bridge support connected to one said terminal and adapted to serve as a fulcrum supporting said bridge for pivotal movement thereon between a plurality of operative positions corresponding to the respective operative positions of said toggle lever;

(i) means for removably mounting said switch housing on said mounting panel with said housing cover adjacent the inner side of said mounting panel;

(j) a plurality of indicator lamps disposed in said housing cover in close proximity to said toggle lever and each being adapted to be energized to show an operating condition in response to positioning of said toggle lever to a respective one of its operative positions;

(k) said mounting panel being formed with a first aperture for receiving said toggle lever such that the toggle lever is accessible from the outer side of said panel;

(l) said mounting panel being formed with a plurality of further apertures each aligned with a respective one of said indicator lamps, said indicator lamps each being disposed at locations within the perimeter defined by the side walls and having a portion protruding outwardly of said housing cover into a respective one of said mounting panel further apertures for ease of detection upon energization; and

(m) a plurality of lenses mounted on said housing cover for receiving a respective one of said indicator lamps, each said lens having a portion protruding outwardly of said housing cover and beyond the outer side of the mounting plane for ease of detection upon energization of the indicator lamp received therein.

4,758,725

CALIBRATION DEVICE FOR NUCLEAR MEDICINE EQUIPMENT AND IT USE PROCESS

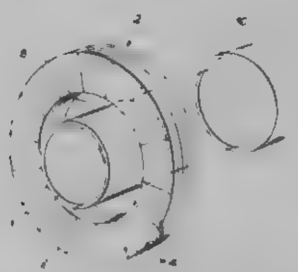
Jean-Luc Lecomte, Echirolles; Michel Martin, Eybens; Francis Sauvage, Moirans, and Edmond Tournier, Grenoble, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Oct. 21, 1986, Ser. No. 921,131

Claims priority, application France, Oct. 25, 1985, 85 15887

Int. Cl.^{4} G01T *1/164*

U.S. Cl. 250—363 R 13 Claims



1. A calibrating device for a nuclear medicine apparatus comprising means for observing a patient who has previously been made radioactive and at least one ionizing radiation detector, said calibrating device comprising:

(a) a radioactive liquid used for the calibration of said at least one ionizing radiation detector;

(b) a container;

(c) a storage magazine communicating with said container by at least one pipe and having a volume at least equal to the volume of said container; and

(d) means for transferring said radioactive liquid from said storage magazine to said container and vice versa, said means for transferring comprising:

(i) a tight elastic diaphragm located in said container so as to produce in said container first and second chambers with variable volumes, said first chamber being connected to said storage magazine, and

(ii) pressurized gas introduction and removal means connected to said second chamber.

4,758,726

COLLIMATOR EXCHANGING SYSTEM

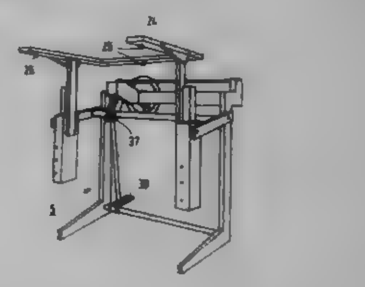
Foppe Douma, and Hendrik J. Meulenbrugge, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 12, 1986, Ser. No. 839,000

Claims priority, application Netherlands, Mar. 15, 1985, 8500748

Int. Cl.^{4} G21K *1/02;* G01T *1/164*

U.S. Cl. 250—363 R 7 Claims



1. In a system for exchanging a plurality of collimators between a measuring position and a storage position, a measuring means being at said measuring position for measuring radiation, a structure comprising

storage means for individually storing a plurality of separated collimators,

cart means for selecting one collimator from said storage means and for placing said one collimator relative to said measuring means, said cart means returning said one collimator from said measuring means to said storage means, wherein said one collimator is transferred by said cart means between said storage means and said measuring means only in a given orientation relative to said storage means and said measuring means.

4,758,727

METHOD AND APPARATUS FOR THE MEASUREMENT OF LOW-LEVEL LASER-INDUCED FLUORESCENCE

L. David Tomei, Dublin; Fred Cornhill, Worthington; Jogikal Jagadeesh, and Michael Boninger, both of Columbus, all of Ohio, assignors to Ohio State University Research Foundation, Columbus, Ohio

Filed Feb. 12, 1986, Ser. No. 828,694

Int. Cl.^{4} G01J *3/10*

U.S. Cl. 250—458.1 26 Claims

1. An apparatus for measuring the excited fluorescence of an object comprising:

means for generating a coherent beam of light;

a three dimensional scanner having means for securing such object in a fixed position, said scanner receiving and passing said coherent beam of light onto such fixed object in a desired pattern and at a desired rate, said scanner having X, Y coordinate scanning capability with simultaneous Z coordinate correction to cause said beam to have a topographical field of focus in the place of said object;

means for controlling the pattern and rate at which said beam of light is passed onto said object;

an optical fiber member for gathering and directing the fluorescent light induced from said object by said beam of light and for attenuating any direct light received by said object;

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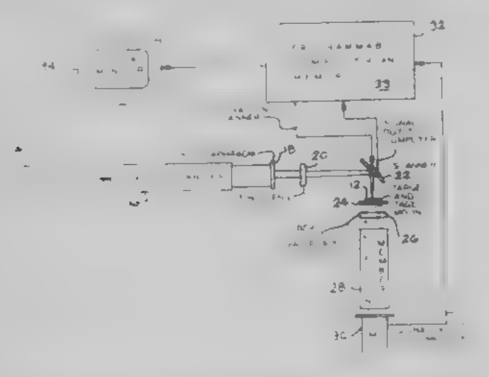
means for collecting and measuring the intensity of the fluorescent light received from said object; and,
means for sequentially recording data regarding the intensity



of the fluorescent light received from said object as a function of the location of said scanning beam of light on said object by said scanner

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4,758,728

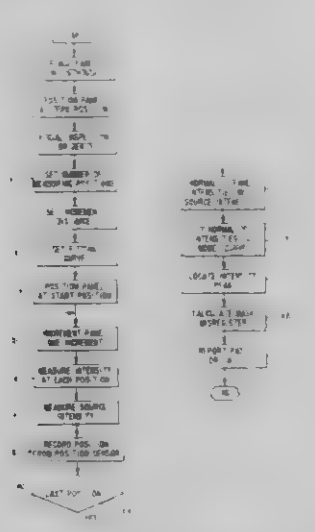
METHOD OF MEASURING MASK MISREGISTRY IN KINESCOPE PANEL ASSEMBLIES

James R. Matey, Hamilton Township, Mercer County, and David P. Bortfeld, Kendall Park, both of N.J., assignors to RCA Licensing Corporation, Princeton, N.J.

Filed Dec. 24, 1985, Ser. No. 813,149

Int. Cl.⁴ H01J *9/42;* **G01N** *21/64*

U.S. Cl. 250—459.1 7 Claims



1. A method of measuring misregistration between the shadow mask and phosphor screen of a cathode ray tube panel assembly comprising the steps of:
placing said panel assembly on an illumination mechanism including an illumination source;
illuminating said phosphor screen, through said shadow mask with illumination composed primarily of ultraviolet light;
detecting illumination emanating from said panel at a plurality of preselected locations of said panel;
effecting incremental relative motion between said panel assembly and said illumination source, wherein said preselected locations are incrementally different for each increment of said motion;
measuring the intensity of the detected illumination at each of said preselected locations to provide measured intensity readings for each increment of motion;
sensing the position of said panel to provide position data for each increment of said motion;
fitting said measured intensity readings and said position data to a model intensity curve and finding the position at which the peak intensity occurs; and
calculating misregistration between said shadow mask and said phosphor screen in accordance with said peak intensity

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4,758,729

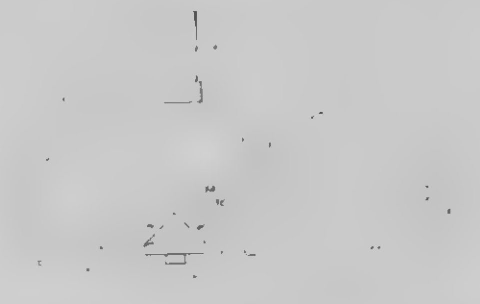
APPARATUS AND METHOD FOR MEASURING THE INCLUDED ANGLE OF A REFLECTIVE CONE

Douglas B. Monnin, Huber Heights, Ohio, assignor to Spectra-Physics, Inc., San Jose, Calif.

Filed Aug. 28, 1987, Ser. No. 90,944

Int. Cl.⁴ G01N *21/86*

U.S. Cl. 250—560 **20 Claims**



1. Apparatus for measuring the included angle of a reflective cone between opposite sides of said reflective cone, comprising
means for illuminating the curved surface of said reflective cone with a collimated beam of light, said beam of light being generally parallel to the axis of said cone,
lens means for receiving directly a portion of the light reflected from a first side of said cone, and for focusing the portion of the light so received in a reference plane,
retro-reflective means, positioned on the side of said cone opposite said lens means, for receiving directly a portion of the light reflected from a second side of said cone and redirecting said light to said lens means substantially parallel to the light reflected from said second side of said cone, said second side of said cone being opposite to said first side of said cone, and
light detection means at the focal point of said lens means for displaying the light received by said lens means, whereby the spacing between the light received from said retro-reflective means and the light received directly from said cone is related to said included angle between said first and second sides of said reflective cone.

4,758,730

METHOD FOR EXAMINING THE SURFACE RELIEFS OF A SAMPLE AND APPARATUS FOR CARRYING OUT SAME

Roland Bazin, Vitry/Seine; Etienne Soudant, Antony, and Patrick Trannois, Thomery, all of France, assignors to L'Oreal, Paris, France

Filed Oct. 22, 1986, Ser. No. 921,469

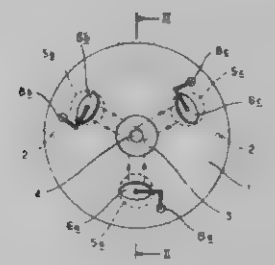
Claims priority, application France, Oct. 25, 1985, 85 15859

Int. Cl.⁴ G01N *21/86*

U.S. Cl. 250—571 17 Claims

1. A method for investigating the surface of a sample in an observed zone having a median plane which zone of the sample may include reliefs comprising the steps of:
illuminating the surface of said sample by means of at least two light sources which emit light having different wavelengths; and

observing the illuminated sample;
wherein the illumination of the surface of the sample is along a direction which is oblique in relation to the median plane



of the observed zone of the sample to create cast shadow zones highlighting the reliefs, and the said at least two light sources having different axes of illumination.

4,758,731

METHOD AND ARRANGEMENT FOR ALIGNING, EXAMINING AND/OR MEASURING TWO-DIMENSIONAL OBJECTS

Erich Schuster, Wetzlar, Fed. Rep. of Germany, assignor to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany

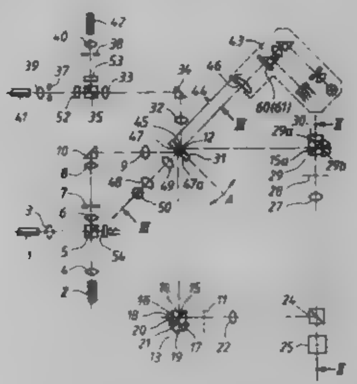
PCT No. PCT/DE86/00146, § 371 Date Jan. 12, 1987, § 102(e) Date Jan. 12, 1987, PCT Pub. No. WO86/06852, PCT Pub. Date Nov. 20, 1986

PCT Filed Apr. 3, 1986, Ser. No. 22,638

Claims priority, application Fed. Rep. of Germany, May 11, 1985, 3517070

Int. Cl.⁴ G03B *41/00;* **G03F** *9/00*

U.S. Cl. 250—560 18 Claims



1. An apparatus for aligning, examining and measuring two-dimensional objects situated on a table of a measuring machine, said table being displaceable in at least two coordinate directions extending perpendicular to one another, said apparatus comprising:
a. illumination means for generating an illumination beam, said illumination beam comprising at least two light fluxes distinguished in accordance with an associated coordinate direction and said illumination means including means for combining said light fluxes in a common beam path;
b. first imaging means for imaging said light fluxes in a common intermediate image plane, said imaging means comprising an optical deflection means, including at least one optical component variable in position, for deflecting said light fluxes in their associated coordinate directions;
c. position means for determining the position of said optical component of said optical deflection means;
d. an imaging system for imaging said light fluxes deflected by said deflection means on an object structure and forming illuminated object structure images corresponding to each coordinate direction; and
e. second imaging means for imaging said illuminated object structure images on a scanner, said second imaging means including said optical deflection means which deflects said illuminated object structure images in their respective coordinate directions, and said scanner including a least one photoelectric detector system for each coordinate direction, wherein said scanner converts said illuminated object structure images into electrical measurement signals.

4,758,732

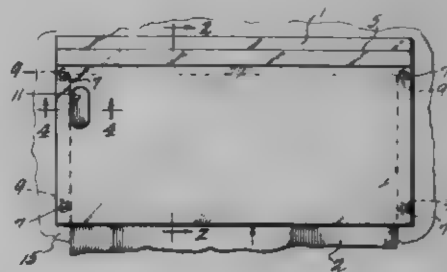
DATA SHEET SUPPORT WITH SCANNER GUIDE AND MANUAL FEED

Anastasios N. Kyriakides, 1620 SW. 96 Ave., Miami, Fla. 33165

Filed Apr. 2, 1987, Ser. No. 33,478

Int. Cl.⁴ G06K *7/10*

U.S. Cl. 250—566 3 Claims



1. An apparatus for scanning a sheet of printed material comprising:
top frame means having a transparent rail portion thereon for guiding a scanner and a smooth inner surface for guiding a sheet of paper or the like, said top frame element means defining an opening for permitting a human digit to pass therethrough; and
bottom frame means having a guide surface;
means for connecting said top frame means and bottom frame means in parallel fixed spaced apart relation from said top frame means so that a sheet of paper having print thereon to be scanned may be advanced past said transparent rail portion by the finger or thumb of an operator.

4,758,733

A LABYRINTHINE LIGHT SCATTERING-TYPE SMOKE DETECTOR

Mikio Mochizuki, Tokyo, Japan, assignor to Nohmi Bosai Kogyo Co., Ltd., Tokyo, Japan

Filed Aug. 18, 1986, Ser. No. 897,705

Claims priority, application Japan, Aug. 24, [illegible], 60-[illegible]

Int. Cl.⁴ G01N *15/07, 21/00*

U.S. Cl. 250—574 4 Claims

1. A labyrinthine light-scattering-type smoke detector comprising a generally cylindrical housing including end walls and a labyrinthine side wall, a light projecting element and a light receiving element within said housing labyrinthine side wall, a light shield member interposed between said light projecting and receiving elements, said side wall being formed of a plurality of identical light shielding columns each having a generally J-shaped cross section arranged in a circle, said J-shaped cross section including a head portion, a leg portion and a rear portion in proceeding radially outwardly of said housing with each portion being defined by parallel planar surfaces, the head portion of each of said light shielding columns having a first reflecting point thereon, each head portion being inclined relative to the bisector of an angle between a pair of lines

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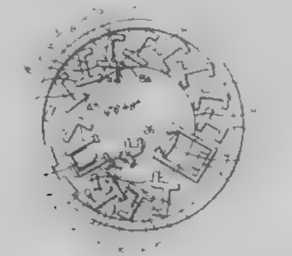
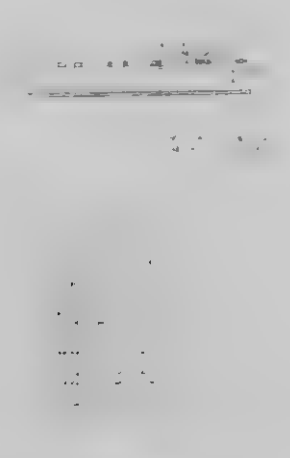
intersecting at said first reflecting point and connecting said first reflecting point with said projecting element and said light receiving element to provide a radially inward end part and a radially outward end part of said head portion, said radially outward end part of said head portion being disposed within a space defined by the head and leg portions of an adjacent light shielding column, said light shielding columns having darkly colored light reflecting surfaces.



4,758,734
HIGH RESOLUTION IMAGE SENSOR ARRAY USING AMORPHOUS PHOTO-DIODES

Hiroyuki Uchida; Setsuo Kaneko, and Toshio Okubo, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Mar. 12, 1985, Ser. No. 710,679
Claims priority, application Japan, Mar. 13, 1984, 59-47836; May 9, 1984, 59-92136; May 9, 1984, 59-92138; Jun. 29, 1984, 59-134313
Int. Cl.⁴ H01L *27/14;* **H04N** *5/30*
U.S. Cl. 250—578 13 Claims



1. An image sensor array comprising.
a substrate having an insulating surface;
a plurality of elongated individual electrodes formed on said insulating surface, said individual electrodes being elongated in a first direction and arrayed in parallel with each other;
a plurality of blocking diodes formed on said individual electrodes, at least two blocking diodes being formed on one individual electrode and disposed in said first direction, said blocking diodes being arranged in at least two lines in a second direction perpendicular to said first direction;
a plurality of photo diodes, each formed on each of said blocking diodes, said photo diodes being thus arranged in at least two lines in said second direction; and
at least two common electrodes of a transparent conductor material running in said second direction, each of said common electrodes being connected to said photo diodes of each line thereof.

4,758,735
DC TOUCH CONTROL SWITCH CIRCUIT

Ronald D. Ingraham, Quincy, Mich., assignor to Nartron Corporation, Reed City, Mich.
Continuation-in-part of Ser. No. 913,084, Sep. 29, 1986. This application Apr. 15, 1987, Ser. No. 38,832
Int. Cl.⁴ H01H *35/00;* **H05B** *37/02*
U.S. Cl. 307—116 15 Claims

1. A direct current powered touch controlled switching circuit comprising:
a source of direct current power;
an oscillator coupled to said source for providing periodic output signals therefrom;
a series voltage divider circuit coupled to said oscillator for receiving said periodic output signals therefrom, said voltage dividing circuit including at least one capacitor and an input touch terminal for coupling a person's body capacitance in series with said at least one capacitor such that the voltage at the junction of said at least one capacitor and said touch terminal will vary upon a person touching said touch terminal; and
a control circuit coupled to the junction of said at least one capacitor and said touch terminal and responsive to a change in voltage thereat for providing a control output signal in response to the touching of said touch terminal.

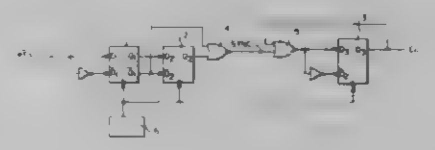
4,758,736
FAST TRANSITION, FLAT PULSE GENERATOR

Agoston Agoston, Beaverton, and John E. Carlson, Portland, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.
Filed Mar. 28, 1986, Ser. No. 845,289
Int. Cl.⁴ H03K *5/01, 3/26*
U.S. Cl. 307—268 11 Claims

1. An apparatus for producing an output voltage step comprising:
means for producing a first current;
means for producing a second current, the first and second currents being of opposite polarities and unequal magnitudes;
means for generating first and second control signals wherein the first and second control signals are switched between first and second voltage states, the first and second voltage states being of equal magnitude but opposite polarity;
a load resistor;
first switch means responsive to the first control signal for directing the first current through the load resistor when the first control signal is of the first voltage state and for preventing the first current from passing through the load resistor when the first control signal is of the second voltage state; and
second switch means responsive to the second control signal for directing the second current through the load resistor when the second control signal is of the second voltage state and for preventing the second current from passing through the load resistor when the second control signal is of the first voltage state,
such that when the first control signal is of the first voltage state and the second control signal is of the second voltage state, the first and second currents are directed through the load resistor and an output voltage of magnitude proportional to the difference in magnitudes between the first and second currents is developed across the load resistor, and
such that when the first control signal is of the second voltage state and the second control signal is of the first voltage state, the first and second currents are directed away from the load resistor and no output voltage is developed across the load resistor in response to the first and second currents.

4,758,737
CLOCK GENERATOR CIRCUIT

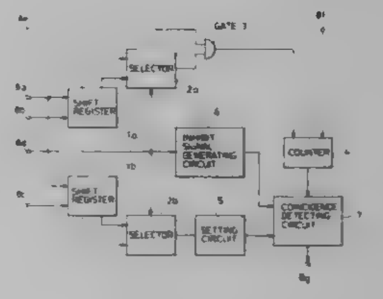
Takaaki Hirano, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Japan
Continuation of Ser. No. 816,067, Jan. 3, 1986. This application Jul. 20, 1987, Ser. No. 85,818
Claims priority, application Japan, Feb. 13, 1985, 60-27396
Int. Cl.⁴ H03K *5/13, 1/17*
U.S. Cl. 307—269 4 Claims



1. A clock generator circuit for an integrated circuit controlled by a frequency-divided clock obtained by frequency-dividing a standard clock, comprising
a first flip-flop with a true output and a false output,
a second flip-flop connected to said true output and said false output of said first flip-flop and having a second output,
a first logical gate with first gate inputs and a first gate output, said first gate inputs being connected each to said false output of said first flip-flop and to said second output of said second flip-flop,
a third flip-flop having a clock signal output terminal from which clock signal for operating an integrated circuit is outputted, and
a second logical gate with second gate inputs and a second gate output, said second gate inputs being connected each to said clock signal output terminal of said third flip-flop and said first gate output and said second gate output being connected to said third flip-flop,
said first flip-flop, said second flip-flop and said third flip-flop each having a clock input terminal connected to receive said standard clock.

4,758,738
TIMING SIGNAL GENERATING APPARATUS

Koyu Yamanoi, and Yoshio Yoshizakiya, both of Tokyo, Japan, assignors to Ando Electric Co., Ltd, Tokyo, Japan
Filed May 1, 1987, Ser. No. 45,098
Claims priority, application Japan, May 6, 1986, 61-103649
Int. Cl.⁴ H03K *5/13*
U.S. Cl. 307—269 1 Claim



1. A timing signal generating apparatus, comprising:
a first shift register having an input supplied with a first select signal and shifting said first select signal with a first reference clock signal;
a second shift register having an input supplied with timing data for shifting said timing data with said first reference clock signal;
a first selector having an input supplied with the output of said first shift register and extracting the output from said first shift register at a position corresponding to the stage designated by a second select signal;
a second selector having an input supplied with the output of said second shift register for producing the output from said second shift register at a position corresponding to the stage designated by said second select signal;
a gate circuit having inputs supplied with a second reference clock signal delayed in phase relative to said first reference clock and the output of said first selector, respectively;
a counter for counting a clock signal of a repetition period shorter than that of said first reference clock signal, said counter being reset in response to the output of said gate circuit;
a setting circuit having an address input supplied with the output of said second selector;
an inhibit signal generating circuit having an input supplied with said second select signal; and
a coincidence detection circuit having inputs supplied with the output of said counter, the output of said inhibit signal generating circuit and the output of said setting circuit, respectively;
wherein said coincidence detection circuit responds to the output of said inhibit signal generating circuit to be inhibited from producing the output for a period during which said second select signal is changed over and a timing signal is outputted from said coincidence detection circuit which timing signal is delayed for a time corresponding to a sum resulting from the addition of the period of said reference clock signal multiplied with the stage number of said shift registers and a value set at said setting circuit.

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4,758,739

READ BACK LATCH

Kevin M. Ovens, Garland, and W. T. Greer, Jr., Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 24, 1986, Ser. No. 911,279

Int. Cl.⁴ H03K *19/003, 3/287*

U.S. Cl. 307—289 8 Claims

1. A read-back latch, comprising

a circuit for transmitting a data input signal from a data input to a data output;

a latching circuit coupled to said transmitting circuit and having an enable input line operative in response to preselected enable control signal of one logic level to disable said transmitting circuit and latch the signal level on the data output and in response to an enable control signal of another logic level to transmit input data to said data output during a time interval;

a switch coupled between data output and the data input and operative in response to a read-back control signal operable after said transmission time interval to couple the output data back to the data input so that the data input signal and the read-back data output signal are not simultaneously on said data input and said read-back output signal can be monitored to verify its integrity before it is transmitted from said output to a subsequent circuit.

4,758,740

CIRCUIT FOR COMPENSATING THE TEMPERATURE DEPENDENCE OF GATE TRANSIT TIMES

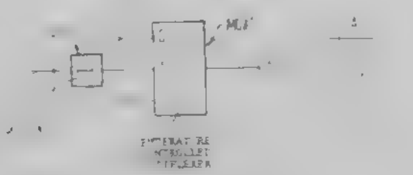
Wilhelm Wilhelm, and Peter Sehring, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 29, 1986, Ser. No. 913,410

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1985, 3534561

Int. Cl.⁴ H03K *3/26, 19/086, 5/13*

U.S. Cl. 307—310 16 Claims



1. Circuit for compensating the temperature dependence of gate propagation times, comprising a signal input for feeding-in an input signal; a signal output for issuing an output signal; a temperature-controlled multiplexer having an output connected to said signal output and three inputs; a delay gate connected between a first one of said inputs of said multiplexer and said signal input, another of said inputs of said multiplexer being directly connected to said signal input; and a further input being a control input of said multiplexer for controlling said multiplexer in dependence on temperature and feeding the input signal to said signal output delayed in a lower temperature range, undelayed in an upper temperature range and mixed, delayed as well as undelayed in a temperature range therebetween.

4,758,741

PHOTOSENSITIVE DEVICE ENSURING AN ANTI-BLOOMING EFFECT

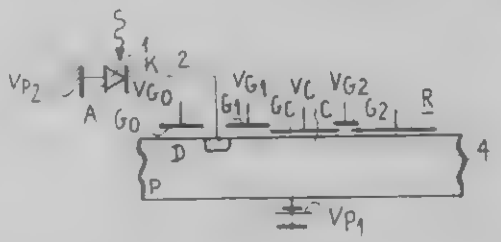
Marc Arques, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Apr. 13, 1987, Ser. No. 42,579

Claims priority, application France, Jun. 25, 1982, 82 11205

Int. Cl.⁴ H03K *3/42;* **H01L** *29/78, 27/14, 31/00*

U.S. Cl. 307—311 13 Claims



1. A photosensitive device designed for anti-blooming comprising:

a first substrate portion including at least one photosensitive detector,

a second substrate portion including a separate integration cell for each detector for receiving charges produced in such detector during a charge integration time, comprising:

a diode connected to the detector;

a charge storage capacitor; and

a first insulated gate located between the diode and the charge storage capacitor;

means for biasing said first and second substrate portions to different potentials;

means surrounding each integration cell for isolating said cell from other cells and for imposing a prescribed surface potential around said cell; and

means including a voltage source for biasing said first insulated gate and said charge storage capacitor with dc voltages sufficient for forming during normal illumination, said diode, said charge storage capacitor and said first insulated gate into a MOS transistor in the saturated mode, and for combining during overillumination when said charge storage capacitor is saturated, said diode, said charge storage capacitor and said first insulated gate to form a capacitor, said detector being then biased to its open circuit voltage and supplying no further charge to the integration cell during overillumination so that the level of charges remains fixed in said cell before reaching the prescribed surface potential.

4,758,742

SHUNT ACTIVATED PULSE GENERATOR

John E. Opie, Stony Creek, Conn., assignor to Echlin Inc., Branford, Conn.

Continuation-in-part of Ser. No. 38,010, Apr. 14, 1987, Pat. No. 4,743,780. This application Jul. 14, 1987, Ser. No. 72,916

Int. Cl.⁴ G11C *11/04;* **H03K** *3/45*

U.S. Cl. 307—419 12 Claims

1. A pulse generator comprising:

a magnetic field actuated sensor,

first magnet means having first and second spaced apart poles,

second magnet means having third and fourth spaced apart poles,

ferro-magnetic guide means,

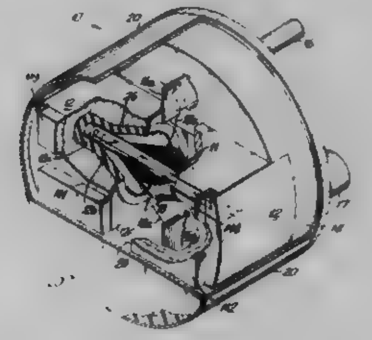
a first magnetic circuit comprising said first pole, said second pole and said guide means, said first magnetic circuit having a predetermined gap,

a second magnetic circuit comprising said third pole, said fourth pole and said guide means, said second magnetic circuit having a predetermined gap,

said predetermined gap of said second magnetic circuit coinciding with said predetermined gap of said first magnetic circuit,

said sensor being positioned in said predetermined gap,

said guide means serving to concentrate the flux generated by said first and second poles of said first circuit in said gap along a predetermined orientation at said gap, said guide means also serving to concentrate the flux generated by said third and fourth poles of said second circuit in said gap along said predetermined orientation at said gap,



said flux from said first circuit in said gap having a first direction along said orientation and said flux from said second circuit in said gap having a second direction along said orientation, said first and second directions being opposed to one another,

whereby the placing of a low reluctance shunt adjacent to said first and second poles will increase the magnitude of the field in said first circuit thereby increasing the flux from said first circuit at said sensor along said first direction to cause the state of said sensor to be affected by that field, and

whereby the placing of a low reluctance shunt adjacent to said third and fourth poles will increase the magnitude of the field in said second circuit thereby increasing the flux from said second circuit at said sensor along said second direction to cause the state of said sensor to be affected by that field.

4,758,743

OUTPUT BUFFER WITH IMPROVED DI/DT

Sam Dehganpour, and Perry H. Pelley, III, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 26, 1986, Ser. No. 911,702

Int. Cl.⁴ H03K *17/04, 17/12, 17/284, 17/687*

U.S. Cl. 307—443 7 Claims

1. In an integrated circuit comprising a package and a chip containing electrical circuits, the chip characterized as being contained in the package the package characterized as having leads, wherein a first lead is connected to a first power supply terminal of the chip and a second lead is connected a second power supply terminal of the chip, the first and second leads characterized as having inductance, a buffer circuit in the chip, comprising:

a first transistor having a first current electrode coupled to the first power supply terminal, a second current electrode for providing an output of the buffer circuit, and a control electrode;

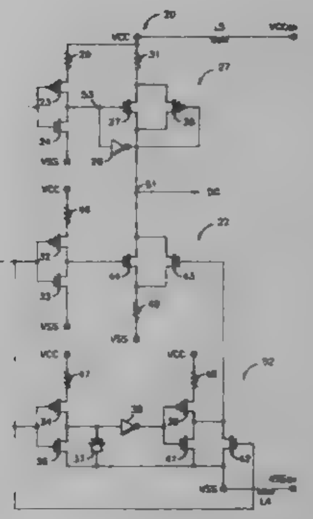
a second transistor having a first current electrode coupled to the control electrode of the first transistor, a control electrode for receiving a first input signal, and a second current electrode;

a first resistor having a first electrode coupled to the second current electrode of the second transistor, and a second electrode coupled to the second power supply terminal;

a third transistor having a first current electrode coupled to the second power supply terminal, a second current electrode coupled to the second current electrode of the first transistor, and a control electrode;

a fourth transistor having a first current electrode coupled to the control electrode of the third transistor, a control electrode for receiving a second input signal complementary to the first input signal, and a second current electrode;

a second resistor having a first electrode coupled to the second current electrode of the fourth transistor, and a second current electrode coupled to the second power supply terminal;



a fifth transistor having a first current electrode coupled to the first power supply terminal, a second current electrode coupled to the control electrode of the first transistor, and a control electrode for receiving the first input signal;

a sixth transistor having a first current electrode coupled to the first power supply terminal, a second current electrode coupled to the control electrode of the third transistor, and a control electrode for receiving the second input signal;

a seventh transistor having a first current electrode coupled to the first power supply terminal, a second current electrode coupled to the second current electrode of the first transistor, and a control electrode; and

a delay circuit, having an input for receiving the first input signal and an output coupled to the control electrode of the seventh transistor, for providing a time delay between the input and output of said delay circuit.

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4,758,744
DECODER CIRCUITRY WITH REDUCED NUMBER OF INVERTERS AND BUS LINES

Dora Plus, South Bound Brook, N.J., assignor to RCA Corporation, Princeton, N.J.

Filed Nov. 26, 1986, Ser. No. 935,389

Int. Cl.^{4} H03K *19/094*

U.S. Cl. 307—449 **7 Claims**

1. A decoder circuit for decoding N input variables, where N is an integer greater than 1, comprising.

(N−1) inverters;

means for applying (N−1) of said N input

variables to respective ones of said (N−1) inverters for producing the complements of said (N−1) input variables;

2^N logic gates, each logic gate having N inputs and at least one output, the one output of each logic gate having one binary value when all the input variables applied to its inputs have the same one binary value and the output of each logic gate having the other binary value when the input variables applied to all its inputs do not have the same one binary value; said 2^N logic gates being paired into $2^{(N-1)}$ pairs of logic gates;

means for applying a different one of sets of (N−1) input variables to the (N−1) inputs of each pair of logic gates, whereby the same (N−1) input variables are applied to the (N−1) inputs of the two logic gates forming a pair of said logic gates, and a different set of (N−1) input variables is applied to each different pair of logic gates;

means for applying the Nth input variable of said N input variables to one input of the one logic gate from each pair of logic gates for producing a signal at the output of said one logic gate which is a unique logic function of the N−1 input variables combined with the Nth input variable; and

means coupling the output of said one logic gate of each pair of gates to one input of the second logic gate of that pair of logic gates for producing a signal at the output of the second logic gate of each pair of gates which is a unique function of the N−1 input variables applied to the one and second logic gates of that pair and the complement of said Nth input variable

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4,758,745
USER PROGRAMMABLE INTEGRATED CIRCUIT INTERCONNECT ARCHITECTURE AND TEST METHOD

Abbas Elgamal, Palo Alto; Khaled A. El-Ayat, Cupertino, and Amr Mohsen, Saratoga, all of Calif., assignors to Actel Corporation, Sunnyvale, Calif.

Filed Sep. 19, 1986, Ser. No. 909,261

Int. Cl.^{4} H03K *17/693*

U.S. Cl. 307—465 **22 Claims**

1. In an integrated circuit, an electrically programmable interconnect architecture, comprising:

a plurality of modules placed in an array, the modules having connection nodes.

a plurality of sets of wiring channels, at least some of said sets of wiring channels having at least one wiring channel comprising at least two wiring segments and wherein at least one of said wiring segments is connected to at least one of said connection nodes.

a plurality of two-terminal, normally-open, electrically-programmable elements, each of said elements located between selected ones of said wiring segments comprising one of said channels, said programmable elements being characterized by a high impedance before programming and being selectively programmable by the user in order to create a permanent bidirectional low impedance electrical connection between wire segments.

4,758,746
PROGRAMMABLE LOGIC ARRAY WITH ADDED ARRAY OF GATES AND ADDED OUTPUT ROUTING FLEXIBILITY

John Birkner, Sunnyvale; Hua T. Chua, Los Altos Hills; Andrew K. L. Chan, Milpitas, and Albert Chan, San Jose, all of Calif., assignors to Monolithic Memories, Inc., Santa Clara, Calif.

Filed Aug. 12, 1985, Ser. No. 765,038

Int. Cl.^{4} H03K *19/177*

U.S. Cl. 307—465 **29 Claims**

1. A PLA comprising:

n lines for communicating n input signals, where n is an integer;

a first plurality of AND gates, each AND gate within said first plurality of AND gates having m input leads, where m is an integer and m<n, each input lead being programmably electrically coupled to said n lines;

a second plurality of AND gates, each AND gate within said second plurality of AND gates having a plurality of input leads, each input lead being programmably electrically coupled to an output lead of an AND gate within said first plurality of AND gates;

a first plurality of OR gates, each OR gate within said first plurality of OR gates having a plurality of input leads, each input lead being programmably electrically coupled to an associated output lead of an AND gate within said second plurality of AND gates; and

a second plurality of OR gates, each OR gate within said second plurality of OR gates having a plurality of input leads programmably electrically coupled to an associated output lead of an OR gate within said first plurality of OR gates, each OR gate within said second plurality of OR gates providing an output signal.

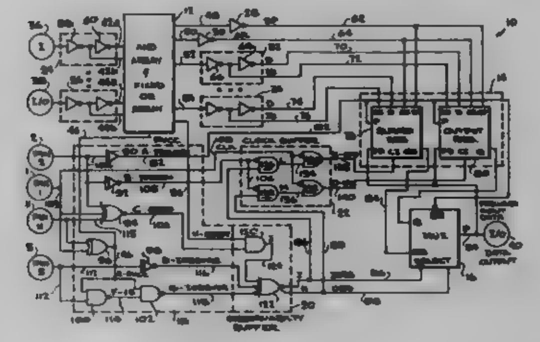
4,758,747
PROGRAMMABLE LOGIC DEVICE WITH BURIED REGISTERS SELECTIVELY MULTIPLEXED WITH OUTPUT REGISTERS TO PORTS, AND PRELOAD CIRCUITRY THEREFOR

Michele Young, San Francisco, and Kapil Shankar, San Jose, both of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed May 30, 1986, Ser. No. 868,970

Int. Cl.^{4} H03K *19/177, 19/092*

U.S. Cl. 307—465 **21 Claims**



1. A logic device comprising:

field programmable apparatus having a plurality of inputs, a plurality of intermediate conductors, a plurality of outputs, means for coupling a field programmable subset of the inputs to a field programmable subset of the intermediate conductors and means for generating signals on the outputs at least partly in response to signals on the intermediate conductors;

a first register and a second register, said first register and said second register having first input means and second input means, respectively, coupled to outputs of said field programmable apparatus, said first register and said second register further having first output means and second output means, respectively; and

register selection means for selectively coupling one of said first output means and said second output means to a shared port.

4,758,748
SENSE AMPLIFIER FOR PROGRAMMABLE READ ONLY MEMORY

Atsushi Takeuchi, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 9, 1987, Ser. No. 23,744

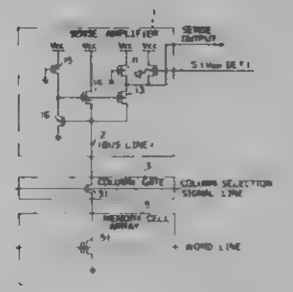
Claims priority, application Japan, Mar. 10, 1986, 61-050579

Int. Cl.^{4} H03K *17/693*

U.S. Cl. 307—530 **9 Claims**

1. A sense amplifier for a programmable read only memory having a sense current source circuit connected to supply memory cells with a cell circuit for both a regular reading and a verify reading, said sense current source circuit receiving a signal indicating a verify reading and controlling the cell current,

wherein a reference value of the cell current for the regular reading is selected to be higher than a reference value of the cell current for the verify reading.



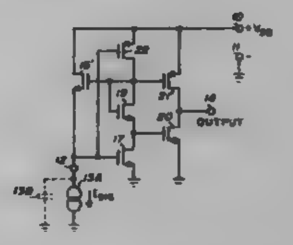
4,758,749
CMOS CURRENT SENSE AMPLIFIER

A. Karl Rapp, Los Gatos, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed May 19, 1987, Ser. No. 51,542

Int. Cl.^{4} G01R *19/165*

U.S. Cl. 307—530 **5 Claims**



1. A CMOS current sensing amplifier having an input terminal coupled to a memory element to determine the electrical state thereof and an output terminal which produces a voltage state indicative of the state of the current in said memory element, said amplifier comprising;

an output inverter gate including a P channel transistor inverter and an N channel transistor inverter, said output inverter gate having an output terminal that acts as said amplifier output terminal and P channel and N channel transistor gate input terminals;

voltage dropping means coupled between said P channel transistor gate and said N channel transistor gate to provide bias for said output inverter gate;

a P channel transistor inverter having an output coupled to said P channel transistor gate and an input coupled to said amplifier input terminal;

an N channel transistor inverter having an output coupled to said N channel transistor gate and an input coupled to said amplifier input terminal; and

an N channel transistor source follower having an input coupled to said P channel transistor gate and an output coupled to said amplifier input terminal.

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4,758,750
LINEAR MOTOR OF MOVING-COIL TYPE

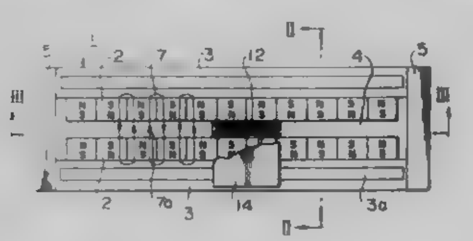
Masato Itagaki; Susumu Nakayama, both of Shimizu; Katsuaki Kikuchi, Tsuchiura; Yosio Haeda, Yaizu; Teruo Umehara, Hanyu, and Fumihiko Kitani, Shimizu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 12, 1987, Ser. No. 13,881

Claims priority, application Japan, Feb. 19, 1986, 61-32981; Mar. 19, 1986, 61-59170

Int. Cl.⁴ H02K *41/00*

U.S. Cl. 310—13 **9 Claims**



1. A linear motor of moving-coil type comprising:

a stationary part including a pair of magnet bands extending in a longitudinal direction disposed in parallel relationship, each band having a plurality of permanent magnets having a width dimension as measured in said longitudinal direction with the magnetic poles thereof alternately reversed, said magnet bands being placed in opposed relations with each other with the magnetic poles thereof arranged in opposite polarities to each other, said magnet bands having a uniform gap therebetween; and

a moving part including a multi-phase moving coil having a plurality of flat coil units arranged in said gap, the dimension of a central part of the coil unit in the longitudinal direction of the magnetic band of the multi-phase moving coil being not greater than the width of one of said permanent magnets divided by the number of coil phases in said multi-phase moving coil, there being provided a plurality of the flat coil units each with central parts having the same width, said flat coil units being arranged successively in such a manner than the central parts thereof lie along a common central plane and are not laid one on the other in said gap, the flat coil units having a total dimension as measured in said longitudinal direction equivalent to an appropriate number of blocks each including two magnets.

said flat coil units being arranged for movement in the gap in the longitudinal direction of the magnetic band thereby to make up a moving flat coil with adjacent coil units having a thickness equivalent to the thickness of a single phase coil unit, said moving flat coil being fixed on a table.

4,758,751
THIN TYPE DC BRUSHLESS MOTOR

Toshiro Hosoya, and Rintaro Kaneeda, both of Tokyo, Japan, assignors to Tobishi Industries Ltd., Tokyo, Japan

Filed Aug. 29, 1986, Ser. No. 901,674

Claims priority, application Japan, Sep. 13, 1985, 60-202985

Int. Cl.⁴ H02K *7/10*

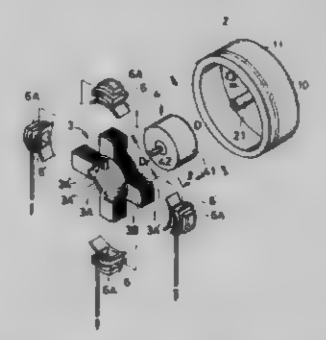
U.S. Cl. 310—41 **13 Claims**

1. A thin type DC brushless motor, comprising:

a permanent magnet rotor; and

a stator core disposed concentrically with said rotor and including, a ring-shaped portion which annularly surrounds said permanent magnet rotor, and a plurality of coil winding portions which extend radially outwardly from an outer peripheral portion of said ring-shaped portion so as to support stator coils thereon;

said coil winding portions having a predetermined axial length which, when said stator coils are energized, define primary poles for cooperating with poles of said permanent magnet rotor so as to cause rotation of said permanent magnet rotor in a predetermined rotational direction, and including a plurality of salient interpole portions, having a predetermined axial length greater than said predetermined axial length of said primary pole coil winding portions, angularly offset with respect to said primary pole portions so as to retain said permanent magnet rotor in a predisposed position relative to said primary pole portions of said stator core such that said permanent magnet rotor poles are angularly offset with respect to said primary pole portions of said stator core in said predetermined rotational direction when said stator coils are de-energized whereby starting of said motor is facilitated when said stator coils are energized.



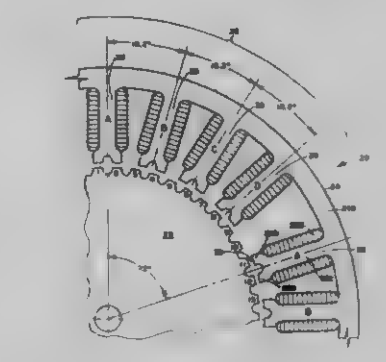
4,758,752
HIGH-SPEED HYBRID STEP MOTOR

Albert C. Leenhouts, 61 Ball Rd., Harwinton, Conn. 06791

Filed Mar. 12, 1987, Ser. No. 24,839

Int. Cl.⁴ H02K *19/12, 37/02*

U.S. Cl. 310—49 R **12 Claims**



1. A two-phase stepping motor, comprising:

(a) a rotor having a plurality of uniformly spaced teeth; and

(b) a stator having a plurality of poleshoes extending inwardly in closely spaced relation to said rotor, each of said poleshoes being disposed in one of a plurality of groups of poleshoes, each poleshoe in each of said groups being uniformly angularly spaced from each other adjacent poleshoe in the same group by an angle which is other than an integer multiple of the spacing between said rotor teeth, each group being angularly spaced from each adjacent group by an angle which is different from the angle between adjacent poleshoes in the same group.

4,758,753
A.C. ELECTRIC MOTORS HAVING A STATOR FORMING ORTHOGONAL MAGNETIC PATHS

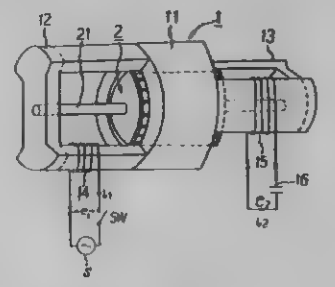
Koichi Murakami, Sendai, Japan, assignor to Tohoku Metal Industries, Ltd., Miyagi, Japan

Continuation of Ser. No. 207,084, Nov. 14, 1980. This application Jan. 26, 1983, Ser. No. 461,103

Claims priority, application Japan, Apr. 28, 1979, 54-52854

Int. Cl.⁴ H02K *11/00*

U.S. Cl. 310—72 **22 Claims**



1. An A.C. electric motor comprising:

a stator including a complete ring of magnetic material having a circular bore extending axially therethrough, said ring having opposite end surfaces, first magnetic yoke means having one end connected to one end surface of said magnetic ring at opposite end positions of a first diameter of said circular bore, second magnetic yoke means having one end connected to the other end surface of said magnetic ring at opposite end positions of a second diameter angularly spaced from said first diameter, first winding means wound on said first magnetic yoke means and having first electric terminals to which an A.C. voltage source is adapted for being connected, and second winding means wound on said second magnetic yoke means and having second electric terminals;

capacitor means connected to said second electric terminals; and

rotor means disposed in said circular bore of said magnetic ring and including a rotary shaft aligned with the axis of said circular bore.

4,758,754
PORTABLE ELECTRIC TOOL WITH VARIABLE TORQUE

Manfred Fink, Eberstadt; Klaus M. Junginger, and Wolfgang Schreiber, both of Stuttgart, all of Fed. Rep. of Germany, assignors to C. & E. Fein GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Jan. 30, 1987, Ser. No. 8,934

Claims priority, application Fed. Rep. of Germany, Apr. 1, 1986, [illegible]

Int. Cl.⁴ H02K *11/00;* H01H *3/02*

U.S. Cl. 310—78 **32 Claims**

1. A motor operated machine with variable torque disengagement, particularly a portable electric tool, comprising

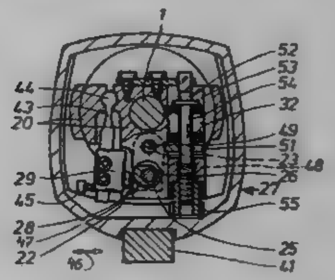
a motor,

a drive shaft driven by said motor via gears,

an operating spindle driven by said drive shaft via gears,

a first bearing means for said drive shaft arranged so as to be stationary,

a second bearing means for said drive shaft spaced from said first bearing means and being displaceable transversely to a longitudinal axis of rotation of said drive shaft within a range of motion of an opposing force, said drive shaft being inclinable transversely to its longitudinal axis of rotation from an initial position by displacement of said second bearing means, and



means for switching off said motor actuatable by inclining said drive shaft as well as displacing said second bearing means out of the initial position.

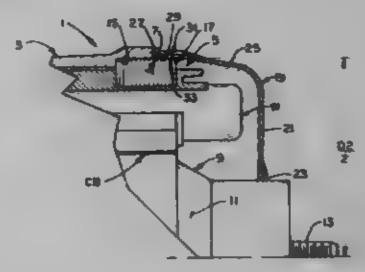
4,758,755
REMOVABLE WINDING COVER FOR UNIT BEARING MOTOR

Jeff S. Sherman, St. Louis County, and Ronald D. Williams, St. Charles County, both of Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Mar. 24, 1987, Ser. No. 28,952

Int. Cl.⁴ H02K *5/00*

U.S. Cl. 310—89 **3 Claims**



1. In a unit bearing motor having an end shield, a stator core mounted within said end shield, said core being comprised of a plurality of laminations having a central bore therethrough, a portion of said core extending axially out beyond said end shield, a rotor rotatable within said central bore of said core, said rotor having a rotor shaft, said end shield receiving and journaling said rotor shaft thereby to journal said rotor with respect to said end shield with said rotor being substantially centered within said central bore, and a cover secured to said core portion extending out beyond said end shield, said cover at least in part enclosing said rotor and said stator, wherein the improvement comprises: said cover being of unitary sheet metal construction and having an inner end proximate said core, said cover having a peripheral rim around the inner end thereof, said cover having an inner face, the inner face of said cover proximate said rim having a plurality of indentations spaced at substantially equal angular intervals from one another around said cover, said indentations being forceably engageable with said core portion extending axially beyond said end shield thereby to secure said cover to said core and to permit the removal of said cover from said core.

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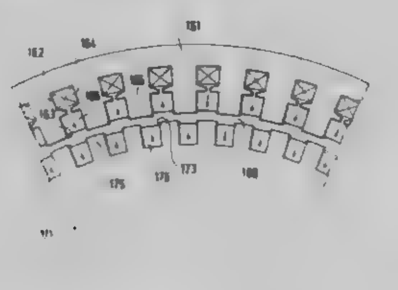
4,758,756
VERNIER-TYPE ELECTRODYNAMIC MACHINE

Jean P. Pouillange, Gressy, France, assignor to Alsthom-Atlantique, Paris, France
Continuation of Ser. No. 721,739, Apr. 10, 1985, abandoned. This application Aug. 4, 1986, Ser. No. 892,456
Claims priority, application France, Apr. 13, 1984, 84 05888
Int. Cl.⁴ H02K *21/00*
U.S. Cl. 310—152 5 Claims



1. A vernier-type electrodynamic machine of the kind comprising two parts separated from one another by an air gap arranged along a surface, said parts being operable to move relative to one another in one direction of said surface such that the width of the air gap is kept constant,

the first of said parts consisting of a magnetic armature with N teeth forming N slots opening onto the air gap and evenly spaced along said direction,

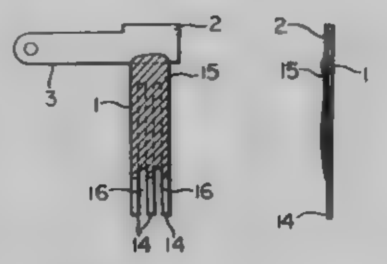
the second part comprising M teeth arranged along said direction, forming M slots, M being different from N, and yielding a vernier effect,

and means for establishing in said air gap a rotating magnetic field relative to said first part along said direction,

the improvement comprising permanent magnets within the slots between the teeth of both said first and second parts to create induction fluxes normal to the air gap and oriented in the same direction.

4,758,757
VIBRATION-DAMPING DEVICE FOR MINIATURE MOTOR BRUSHGEAR

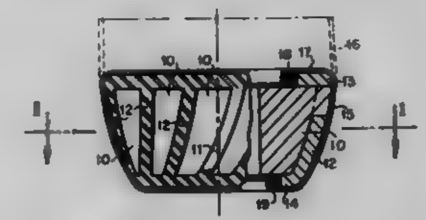
Takeshi Okumura, Chiba, Japan, assignor to Mabuchi Motor Co., Ltd., Japan
Filed Nov. 20, 1986, Ser. No. 934,177
Claims priority, application Japan, Nov. 20, 1985, 60-267904
Int. Cl.⁴ H02K *13/10*; H01R *39/18*
U.S. Cl. 310—244 9 Claims



1. A vibration-damping device for miniature motor brushgear comprising brush arms having sliding parts at the tips of fork-like prongs, terminals and brush bases; said brush bases being supported by a motor case cover and said sliding parts being adapted to make sliding contact with a motor commutator, and characterized in that a soft photo-setting resin is applied on said brush arms, except areas at which said brush arms make contact with said commutator, in such a manner that said soft photo-setting resin covers not only said fork-like prongs but gaps between said fork-like prongs, and each of said fork-like prongs being independently movable by resiliency of said soft photo-setting resin.

4,758,758
ROTOR FOR ELECTRIC MACHINES HAVING A SPHERICAL GAP FOR THE MAGNETIC FLUX

Karsten Laing, 632 Marant Ct., Chula Vista, Calif. 92011
Continuation-in-part of Ser. No. 667,778, Nov. 2, 1984, abandoned. This application Sep. 10, 1986, Ser. No. 905,830
Int. Cl.⁴ H02K *1/22*
U.S. Cl. 310—261 7 Claims



1. A rotor for a spherical gap electrical motor comprising:

(a) an iron ring having a spherical surface;

(b) grooves in the spherical surface which extend over the axial length of the iron ring;

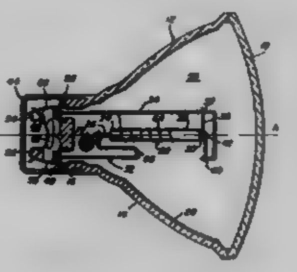
(c) bars of highly electrically conductive material disposed in the grooves;

(d) short-circuiting annular rings of highly electrically conductive material located on the top and bottom of the iron ring, integrally formed in one piece with the bars to form a squirrel cage; and

(e) a thin-walled cap of ferro-magnetic material surrounding the iron ring and supporting molten material used to form the squirrel cage.

4,758,759
LAMP WITH LIGHT-SOURCE CAPSULE SUPPORT MEMBERS HAVING EQUAL THERMAL CONDUCTIVITY

John A. Scholz, Beverly, Mass.; William G. Thiry, Winchester, Ky., and Robert S. Whi[illegible], Beverly, Mass., assignors to GTE Products Corporation, Danvers, Mass.
Filed Nov. 6, 1986, Ser. No. 927,891
Int. Cl.⁴ H01J *5/46, 61/34, 61/36*; H01K *1/40*
U.S. Cl. 313—25 16 Claims



1. A single-ended lamp comprising:

(a) an outer envelope having a longitudinal axis, a body, and a neck, at least a portion of said outer envelope being light-transmissive;

(b) a light-source capsule having a central axis and first and second opposed ends, said light-source capsule being mounted within said outer envelope such that said central axis is substantially coincident with said longitudinal axis and said first end is closer to said neck of said outer envelope than is said second end, each of said ends having a thermally conductive lead-in mounted therein, said light-source capsule being heat producing during operation of said lamp;

(c) first and second thermally conductive support members for supporting said light-source capsule, said first member being thermally coupled with the lead-in of said first end, said second member being thermally coupled with the lead-in of said second end;

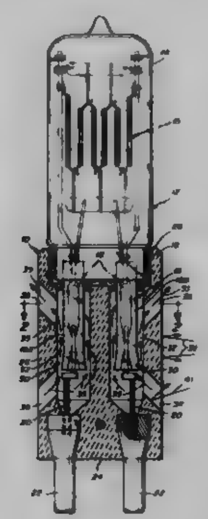
(d) a base mounted on said neck, said base enclosing an interior, said interior being thermally coupled with said first and second support members;

(e) said first and second support members being separately adapted such that during operation of said lamp the amount of heat conducted to said interior through said first member is approximately equal to the amount of heat conducted to said interior through said second member; and

(f) means for structurally and electrically completing said lamp.

4,758,760
CONVECTIVELY COOLED CERAMIC LAMP BASE

David A. Cox, and Jeffrey P. Buschmann, both of Lexington, Ky., assignors to GTE Products Corporation, Danvers, Mass.
Filed Dec. 7, 1987, Ser. No. 129,498
Int. Cl.⁴ H01K *1/28, 1/58*
U.S. Cl. 313—43 12 Claims



1. A tungsten halogen lamp comprising a sealed envelope of vitreous material having a bulb portion and a press sealed portion including two spaced apart sealed leg portions at one end thereof;

a pair of electrically conductive lead-in wires electrically connected at first ends to a filament structure positioned in the bulb portion of the sealed envelope; the lead-in wires sealed through the press-sealed leg portions and extending beyond the pressed-sealed portion for electric connection; and

a ceramic base having a first base hole sized and positioned to accommodate and support the press-sealed portion of the sealed envelope,

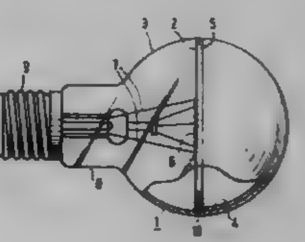
a pair of second base holes sized and positioned as a continuation of the first base hole to accommodate the sealed leg portions,

a wall means having defined therein convective vent means including at least one first vent passage extending at an angle to the longitudinal axis of one of the second base holes for the inlet of air from outside the base to at least one of the second base holes,

the wall means having at least a second vent passage extending at an angle to the longitudinal axis of the second base hole for the outlet of air from the second base hole to the outside of the base, the second vent passage being disposed apart from the first vent passage at a location closer to the bulb portion than the location of the first vent passage to provide an air circulation path from the first vent passage, thereby providing convective air cooling of the envelope press-sealed portion when the lamp is operated in an upright manner.

4,758,761
ELECTRIC LAMP VESSEL HAVING A MIRROR COATING WITH A SHARPLY DEFINED BOUNDARY

Johannes W. [illegible], and Albert J. [illegible], both of Weert, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 16, 1987, Ser. No. 40,450
Claims priority, application Netherlands, Apr. 16, 1986, 8600955
Int. Cl.⁴ H01K *1/32*; H01J *5/10*
U.S. Cl. 313—113 3 Claims



1. An electric lamp comprising:

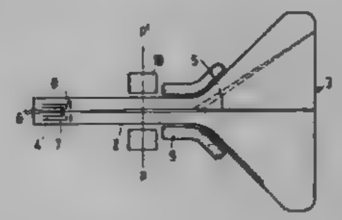
a blown glass lamp vessel sealed in a vacuum tight manner and having a largest diameter, a transparent wall portion and a wall portion mirror-coated at its inner surface with an aluminum layer, this mirror-coated portion having a boundary near the largest diameter of the lamp vessel;

a light source arranged in the lamp vessel; and

current supply conductors extending through the wall of the lamp vessel to the light source; characterized in that the inner surface of the lamp vessel has a zone which is coated with a transparent aluminum oxide layer and which adjoins the boundary of the mirror-coated wall portion near the largest diameter of the lamp vessel.

4,758,762
CATHODE RAY TUBE HAVING A MAGNETIC FOCUSING LENS

Aart A. Van Gorkum, Tokyo, Japan; Martinus H. L. M. Van Den Broek, and Robert H. J. Fastenau, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jan. [illegible], 1987, Ser. No. [illegible]
Claims priority, application Netherlands, Jun. 11, 1986, 8601512
Int. Cl.⁴ H01J *29/56, 29/64*
U.S. Cl. 313—440 4 Claims



1. In a monochrome cathode-ray tube comprising an enve-

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lope containing a luminescent screen, an electron gun for producing an electron beam directed toward screen, and having a neck portion around which deflection means is disposed for deflecting the electron beam across the screen, the improvement comprising magnetic focusing means disposed around the neck adjacent the deflection means for simultaneously producing a static magnetic focusing field for focusing the electron beam into a spot on the screen and a higher-order multipole magnetic correction field for correcting distortion of the spot as the electron beam is deflected away from a central area of the screen, said magnetic focusing means being adapted to produce said multipole field at a place in the envelope where the electron beam diameter is a maximum.

4,758,763

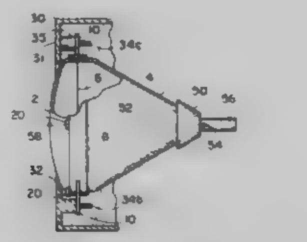
MEANS FOR ALIGNING A CATHODE-RAY TUBE AND RASTER WITH ITS ENCLOSURE

Philip S. Gorton, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed May 5, 1986, Ser. No. 859,562

Int. Cl.⁴ H01J *29/86*

U.S. Cl. 313—482 **4 Claims**



1. In combination, a cathode-ray tube (CRT) having a funnel and a faceplate, and a support structure for receiving the CRT, and including means for aligning the CRT and the support structure, one with respect to the other, the CRT having at least two mounting members that are angularly spaced about the axis of the CRT and the support structure having mounting members for engagement with the mounting members of the CRT, the CRT and the support structure having at least first and second pairs of mutually interengageable mounting members, said first pair of mounting members comprising a first cylindrical post and a member formed with a circular hole for receiving the post, the diameter of the circular hole being substantially equal to the diameter of the first cylindrical post, whereby said first pair of mounting members provides a first point of alignment between the CRT and the support structure, and said second pair of mounting members comprising a second cylindrical post and a member formed with an elongate slot having a width substantially equal to the diameter of the second cylindrical post, a line perpendicular to the longitudinal axis of the slot when the first and second pairs of mounting members are interengaged being transverse to a line joining the centers of the two cylindrical posts, whereby said second pair of mounting members provides a second point of alignment between the CRT and the support structure and the orientation of the elongate slot with respect to the line joining the centers of the two cylindrical posts provides a third point of alignment between the CRT and the support structure.

4,758,764

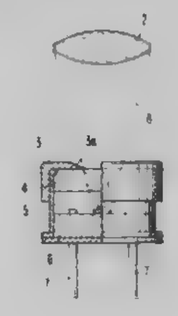
LIGHT-EMITTING DEVICE FOR AUTOMATIC FOCUS ADJUSTMENT APPARATUS

Ryuichiro Kuga, Katano; Yoshiaki Hirao, Habikino; Hiroyuki Asakura, Osaka, and Yoshitomi Nagaoka, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 3, 1986, Ser. No. 870,119

Int. Cl.⁴ H01L *33/00*

U.S. Cl. 313—499 **16 Claims**



1. A light-emitting device for use in an automatic focus adjusting apparatus for a camera comprising:
- a light-emitting element for emitting light;
- a base having said light-emitting element mounted thereon;
- an outer casing for forming a side wall of said light-emitting device and encasing therein said base and said light-emitting element;
- a cover glass placed in front of said light-emitting element and attached to said outer casing and forming a front wall of said light-emitting device for passing light directly therethrough; and
- means provided on an outer surface of said cover glass for reducing the amount of flare light reflected from an inner wall of said casing and a surface of said base which is passed by said means and for passing, of the light emitted directly from said light-emitting element substantially the amount as is effectively used for focus adjustment.

4,758,765

BLACK LAYER FOR THIN FILM EL DISPLAY DEVICE

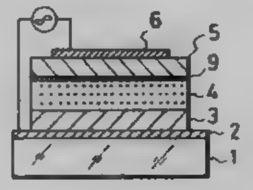
Kenichi Mitsumori, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Japan

Filed Jun. 6, 1986, Ser. No. 872,214

Claims priority, application Japan, Jun. 7, 1985, 60-123880

Int. Cl.⁴ H01J *1/62*

U.S. Cl. 313—506 **7 Claims**



1. A thin film EL display device having an EL emission layer disposed between a transparent electrode in front and an opposing electrode in back, wherein a light absorbing black layer is provided in back of said EL emission layer and is composed of a material made of the same chemical elements as those of a light emitting material of said EL emission layer, but said black layer material is not the same as the light emitting material of said EL emission layer, wherein the light absorbing black layer comprises zinc sulfide (ZnS_x ($0<x<1$)) or zinc sulfide doped with metal or a metal compound (ZnS_x:M ($0<x<1$, and M=metal or metal compound)).

4,758,766

GAS DISCHARGE DEVICES UTILIZING ELECTRON INJECTION FOR GAS IONIZATION

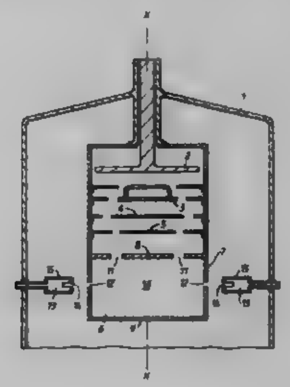
Clifford R. Weatherup, Chelmsford, England, and Arthur Maitland, St. Andrews, Scotland, assignors to English Electric Valve Company Limited, Chelmsford, England

Filed Dec. 18, 1985, Ser. No. 810,303

Claims priority, application United Kingdom, Dec. 22, 1984, 8432612

Int. Cl.⁴ H01J *1/46, 15/02*

U.S. Cl. 313—595 **11 Claims**



1. A gas discharge device, including: an anode, an enclosure member having an aperture therein and substantially enclosing a volume of a gas filling, and means for injecting electrons into said volume of gas filling to produce ionization of the gas filling within said volume such that during operation of said device, said enclosure member and the ionization of the gas filling within said enclosure member comprise a cathode, and a conduction path is established between the interior of said cathode and said anode through the aperture of said enclosure member.

4,758,767

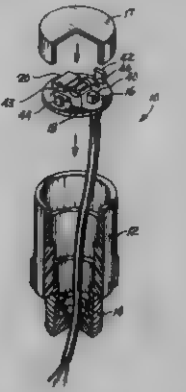
SELF-CONTAINED ANALOG PHOTODIODE LIGHT SENSING HEAD

Frederick H. Blake, Mill Creek, Wash., assignor to Multipoint Control Systems, Incorporated, Mill Creek, Wash.

Filed May 15, 1987, Ser. No. 50,943

Int. Cl.⁴ H01J *41/26*

U.S. Cl. 315—158 **10 Claims**



1. A self-contained light sensor head operable to generate a low voltage and amperage output signal at a voltage no greater than thirty volts and an amperage no higher than eight amps, said signal being proportional to the amount of light sensed by said sensor head, and wherein the voltage and amperage of said output signal is compatible for direct transmission down a line from said sensor head to an analog computer that operates within a certain preselected range of voltages and amperages, said computer being remotely located from said sensor head, and said sensor head comprising:
- a sensor housing;
- a photodiode received in said housing and in a position for sensing light, said photodiode being operable to produce an electrical response representative of the intensity of said sensed light;
- means operable for amplifying said photodiode electrical response, and for producing said output signal therefrom, for transmission from said sensor head to said analog computer, said amplifying means being received in said housing and positioned adjacent said photodiode;
- means operable for controlling gain of said output signal produced by said amplifying means, wherein said gain control means is received in said housing and positioned adjacent said amplifying means and said photodiode;
- means operable for supression of electrical noise in said output signal by using an electrical capacitance greater than 0.1 microfarads, wherein said noise supression means is received in said housing and positioned adjacent said photodiode, said amplifying means, and said gain control means; and
- means operable for supression of resonant oscillations in said output signal, said oscillation supression means being received in said housing and positioned adjacent said photodiode, said amplifying means, said gain control means, and said noise supression means.

[illegible]

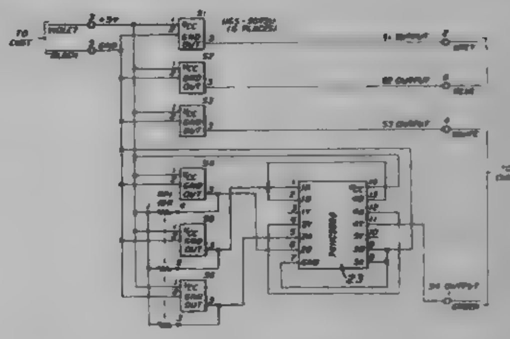
12-STEP COMMUTATION DEVICE FOR AN ELECTRIC MOTOR

Howard F. Hendricks, Harleysville, and Richard C. Green, Hatboro, both of Pa., assignors to Penn Engineering & Manufacturing Corp., Danboro, Pa.

Filed Sep. 25, 1987, Ser. No. 100,962

Int. Cl.⁴ H02K *29/08*

U.S. Cl. 318—254 **10 Claims**



1. An electric motor comprises field coils, a rotor having a plurality of permanent magnets, and further comprising:
- a first set and a second set of signal-generating devices mounted on a stator ring for commutating said motor,
- a shaft-mounted commutation magnet for triggering said signal-generating devices,
- said first set of signal-generating devices being spaced equally within 360 electrical degrees,
- said second set of signal-generating devices being spaced equally within 360 electrical degrees, said second set of signal-generating devices is positioned with respect to said first set at one-half of the angle of electrical degrees between two adjacent signal-generating devices of said first set, said second set of signal-generating devices having outputs all electrically combined to form a single commutation output signal.

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4,758,769
APPARATUS FOR SENSING DIRECTION OF ROTATION

Thomas F. Carrigan, and Charles A. Maltby, both of Bradford, England, assignors to Lucas Industries Public Limited Company, Birmingham, England

Filed Dec. 2, 1986, Ser. No. 936,793

Claims priority, application United Kingdom, Dec. 19, 1985, 8531235

Int. Cl.⁴ H02K *23/00;* **G05B** *5/00*

U.S. Cl. 318—254 **7 Claims**

1. An apparatus for sensing the direction of rotation of a device, comprising a rotor for rotation with said device, first and second detectors mounted on a relatively fixed part of said apparatus, at least one pair of magnets mounted on said rotor so as respectively to present opposite magnetic poles to said first detector, said first detector being responsive to the flux from said magnets for providing a first voltage signal whose polarity is dependent on the polarity and direction of rotation of an adjacent one of said magnets, and said second detector providing a second voltage signal in response only to one of said magnetic poles, said second voltage signal being substantially coincident with one polarity of said first signal, means for comparing said first and second voltage signals from said first and second detectors, and means for providing first or second direction indicating signals which are respectively dependent on the correspondence or non-correspondence between the polarities of said first and second voltage signals.

4,758,770
SERVOSYSTEM FOR CONTROLLING THE VOLTAGE IN X-RAY GENERATORS

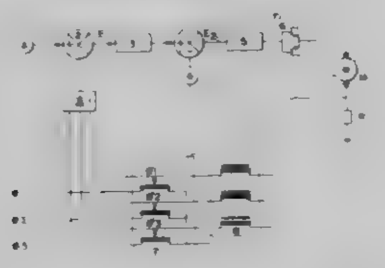
Carlos Mansseco Santurtun, and Miguel A. Ruiz Corral, both of Madrid, Spain, assignors to General Espanola de Electromedicina S.A., Madrid, Spain

Filed May 5, 1982, Ser. No. 375,094

Claims priority, application Spain, May 14, 1981, 502248

Int. Cl.⁴ G05B *1/06;* **H05G** *1/32*

U.S. Cl. 318—666 **7 Claims**



1. A servosystem for controlling an AC voltage by controlling a D.C. motor which is mechanically connected to an autotransformer having at least one winding with a movable brush having said AC voltage appearing thereon, said servosystem comprising:

an input means for receiving an input demand request voltage;

a voltage feedback transducer which is electrically connected to said movable brush of said at least one winding of said autotransformer for converting said AC voltage into a corresponding DC output voltage;

a voltage error detector operatively electrically connected to said input means and said voltage transducer for generating a voltage error signal corresponding to the difference between said DC output voltage of said voltage feedback transducer and said input demand request voltage;

an amplifier and compensator means operatively electrically connected to said voltage error detector for amplifying and compensating said voltage error signal and for providing an output corresponding thereto;

a current feedback transducer for detecting a current flowing through said DC motor and for providing an output signal corresponding thereto;

a current error detector operatively electrically connected to said current feedback transducer and said amplifier and compensator means for generating an output signal corresponding to the difference between said output of said current feedback transducer and said output of said amplifier and compensator means;

a current error amplifier means operatively electrically connected to said current error detector and to said DC motor for amplifying said output signal from said current error detector and for driving said DC motor with said amplified signal;

wherein said servosystem has a first feedback loop which consists of said autotransformer, said voltage feedback transducer, said voltage error detector, said amplifier and compensating means, said current error detector, said current error amplifier means, and said DC motor;

wherein said servosystem has a second feedback loop which consists of said DC motor, said current transducer, said current error detector, and said current error amplifier means.

4,758,771
APPARATUS FOR DRIVING AC MOTOR

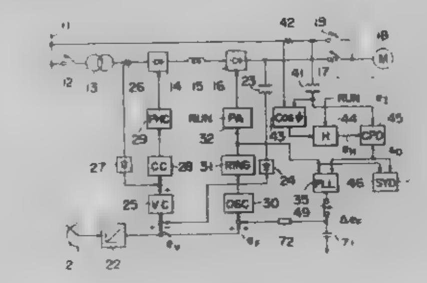
Suzuo Saito, Higashi, and Yasuhiro Ando, Hachioji, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Oct. 29, 1986, Ser. No. 924,414

Claims priority, application Japan, Oct. 30, 1985, 60-241354

Int. Cl.⁴ H02P *7/36*

U.S. Cl. 318—729 **7 Claims**



1. In an apparatus for driving an ac motor comprising:

a current controlled type power converter which produces an ac current or power having an arbitrary frequency as its output;

a first switch provided to connect said power converter to said ac motor, and a second switch provided to connect an independent ac power supply to said ac motor;

first means for detecting a voltage phase of said ac power supply;

second means for detecting a value proportional to the power factor of said ac power supply;

third means for holding an output signal from said second means at a preselected time from a period while said motor is driven by said ac power supply, until said ac motor is switched to said power converter;

fourth means for calculating a current phase of said ac motor on the basis of output signals from said first and third means; and

fifth means for instructing said power converter to run and for instructing said first and second switches to be operative in synchronism with a phase detection signal from said fourth means wherein said ac motor is switched from said ac power supply to said power converter.

4,758,772
DISCHARGE INDICATING MEANS FOR A STORAGE BATTERY

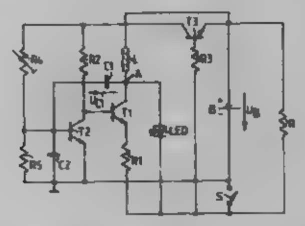
Gerhard Lang, Altweilnau, Fed. Rep. of Germany, assignor to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany

Filed Jun. 19, 1987, Ser. No. 64,050

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1986, 3622991

Int. Cl.⁴ H02J *7/02*

U.S. Cl. 320—48 **9 Claims**



1. A discharge indicating means for a storage battery that has first and second terminals, said circuit comprising

a choke, a first transistor that has a base and a collector-emitter circuit, first means for connecting said choke and said first transistor in series with said storage battery,

means for connecting a load to be energized to said storage battery,

an indicating device, second circuit means connecting said indicating device in parallel with the collector-emitter circuit of said first transistor,

a second transistor that has a base and a collector emitter circuit, third circuit means connecting the connector-emitter circuit of said second transistor in circuit between the base of the first transistor and the first terminal of said battery,

a first capacitor, fourth circuit means connecting said first capacitor in circuit between said choke and the base of said second transistor,

a switching device, fifth circuit means connecting said switching device in circuit between the first terminal of said storage battery and said first circuits means connecting said choke and said first transistor in series with said storage battery, said switching device being arranged to establish current flow through said load and said choke,

a third transistor that has a base and a collector-emitter circuit, and sixth circuit means connecting said third transistor in circuit between said second terminal of said battery said second transistor for applying a signal to said second transistor when the voltage of said battery falls below a predetermined value to cause oscillating operation of said first transistor and energization of siad indicating device.

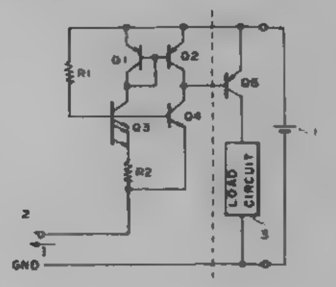
4,758,773
SWITCHING DEVICE

Ikuo Fushimi, Ebina, and Takamasa Sakuragi, Hiratsuka, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan Continuation of Ser. No. 826,907, Feb. 6, 1986, abandoned. This application Mar. 16, 1987, Ser. No. 26,476

Claims priority, application Japan, Feb. 8, 1985, 60-021769; Feb. 8, 1985, 60-021770; Feb. 12, 1985, 60-023652

Int. Cl.⁴ G05F *5/00*

U.S. Cl. 323—351 **6 Claims**



1. A switching device for supplying a current to a load only when an input current exceeds a prescribed threshold, comprising:

an input terminal for receiving the input current;

an output terminal for supplying a current to the load;

a first transistor and a second transistor each comprising an emitter for passing an emitter current, a base, and a collector for passing a collector current, the emitter of the first transistor having a larger area than the emitter of the second transistor to provide an emitter area ratio exceeding 1;

a first resistor having a resistance and connected to the emitter of said first transistor;

a driving transistor having a control electrode connected to the collector of said second transistor; and

a constant-current circuit connected to said first and second transistors in such a manner as to supply equal currents to said first and second transistors, wherein

the bases of said first and second transistors being equally biased to a constant level, the sum of the emitter currents of said first and second transistors providing said input current, the collector currents of said first and second transistors reversing their relative magnitude when the input current exceeds said prescribed threshold, thereby to cause a change in potential of the collector of said second transistor and to operate said driving transistor, so that a current is supplied to the load only when the input current exceeds the threshold.

4,758,774
PORTABLE TESTER AND RELATED METHOD FOR DETERMINING THE PRIMARY WINDING TO SECONDARY WINDING CURRENT RATIO OF AN IN-SERVICE CURRENT TRANSFORMER

Tullus E. Crawford, and Claude R. Riley, Jr., both of Knoxville, Tenn., assignors to Special Instruments Laboratory, Incorporated, Knoxville, Tenn.

Filed Apr. 29, 1985, Ser. No. 728,194

Int. Cl.⁴ G01R *31/02*

U.S. Cl. 324—55 **12 Claims**

1. A portable tester for determining the primary winding to secondary winding current ratio of a current transformer for a watt-hour meter while said transformer is in service with said primary winding coupled to an active power line carrying a first AC signal and with said secondary winding coupled to said watt-hour meter to deliver a second AC signal to said watt-hour meter, said tester comprising:

a. a current probe having a split core positionable around

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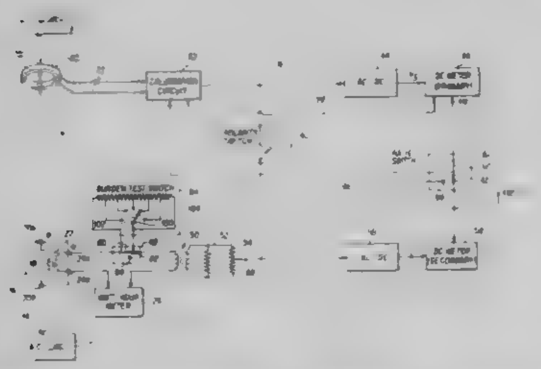
said active power line to provide a third AC signal which is proportional in magnitude to the magnitude of said first AC signal;

b. means for deriving a first DC signal having a magnitude proportional to the magnitude of said third AC signal;

c. means for deriving a second DC signal, having a mangitude proportional to the magnitude of said second AC signal; and



d. means for converting said first and second DC signals into a display of the ratio of said first and second DC signals, said converting means including a DC signal ratio meter and means for simultaneously applying said first and second DC signals to said signal ratio meter to display said ratio on said signal ratio meter.

4,758,775

BROAD BAND COUPLER

Mark D. Roos, San Carlos, Calif., assignor to EIP Microwave, Inc., San Jose, Calif.

Filed Apr. 10, 1987, Ser. No. 36,752

Int. Cl.⁴ G01R *27/06*

U.S. Cl. 324—58 B 3 Claims

1. In a microwave measurement system for applying broad band radio frequency energy to a device under test and receiving signal information from the device under test an energy coupler comprising:

a radio frequency energy transmission means for coupling between a source of radio frequency and a device under test to transmit said radio frequency energy to said device under test and receive energy reflections from an device under test over said entire frequency band;

a first coupler means coupled to said transmission means for sampling transmitted and reflected radio frequency energy, said first coupler means having a first frequency band pass over a first predetermined portion, less than the whole, of the frequency band of said source; and

a second coupler means coupled to said transmission means for sampling transmitted and reflected radio frequency energy, said second coupler means having a second frequency band pass over a second predetermined portion, less than the whole, of the frequency band of said source, said first and second frequency band passes being different.

4,758,776

RF INTERFEROMETER

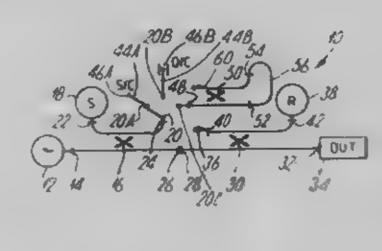
Eric J. Griffin, Worcester, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Sep. 29, 1986, Ser. No. 912,235

Claims priority, application United Kingdom, Oct. 8, 1985, [illegible]

Int. Cl.⁴ G01R *27/06*

U.S. Cl. 324—58 B 6 Claims



1. In an RF interferometer of the kind including coupling means arranged to transmit power from a source for reflection at a device under test and first and second detectors connected to the coupling means, the first detector being arranged to detect power arising from vector combinations of source voltage with voltage reflected from a device under test and the second detector being arranged to detect source power, the improvement comprising the interferometer also including a single pole, multi-way switch arranged to select in sequence each of three different reflectors having differing reflection coefficients, the switch being connected to the coupling means so as to effect switchable voltage reflection to the first detector providing the first detector with three successive differing vector combinations of source voltage with voltage reflected from a device under test.

4,758,777

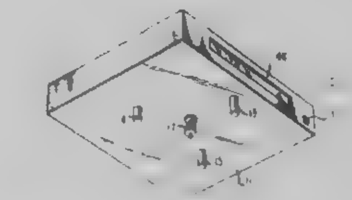
SURFACE RESISTIVITY METER

Peter R. Bossard, Langhorne, and Robert H. Dunphy, Holland, both of Pa., assignors to Voyager Technologies, Inc., Langhorne, Pa.

Filed Feb. 19, 1985, Ser. No. 702,510

Int. Cl.⁴ G01R *27/14*

U.S. Cl. 324—64 14 Claims



1. A surface resistivity meter for measuring surface resistivity including a contact surface comprising a plurality of legs spaced apart in a manner to define a plane for standing said resistivity meter on a surface to be tested, a spring loaded electrode positioned centrally with respect to said legs, means for impressing a voltage between said electrode and said legs and means for providing a reading of current flowing between said electrode and said legs, said current being indicative of the surface resistivity of the test surface.

4,758,778

METHOD AND AN APPARATUS FOR DETERMINING THE DEGREE OF FRESHNESS OF PIECES OF FOOD

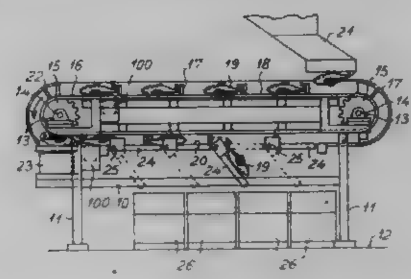
Björn Kristinsson, Reykjavik, Iceland, assignor to Rafagnataekni (Electronics), Reykjavik, Iceland

Filed Jan. 2, 1986, Ser. No. 815,588

Claims priority, application Denmark, Jan. 2, 1985, 23/85

Int. Cl.⁴ G01R *27/02*

U.S. Cl. 324—65 R 15 Claims



1. A method of determining freshness of pieces of food based on electrical characteristics of the food, said method comprising:

(a) successively moving said pieces of food along a first path of movement past a first set of electrodes and slidably contacting a first side of each piece of food with the first set of electrodes while it passes the same;

(b) carrying out a plurality of successive first measurements by means of the first set of electrodes on the first side of each piece of food passing the first set of electrodes and slidably contacting same;

(c) successively moving said pieces of food along a second path of movement past a second set of electrodes and slidably contacting a second side of each piece of food with said second set of electrodes while it passes the same;

(d) carrying out a plurality of successive second measurements by means of said second set of electrodes on said second side of each piece of food passing the second set of electrodes and slidably contacting same; and,

(e) determining a degree of freshness of each piece of food from such first and second measurements.

4,758,779

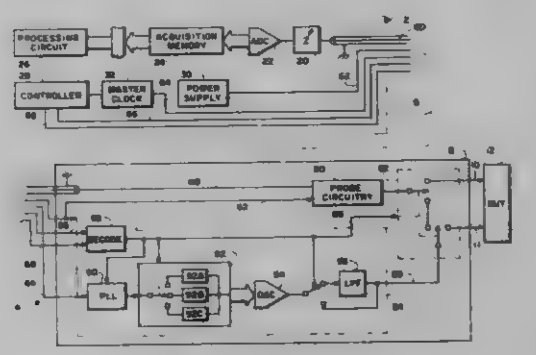
PROBE BODY FOR AN ELECTRICAL MEASUREMENT SYSTEM

Tran Thong, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Apr. 7, 1986, Ser. No. 848,548

Int. Cl.⁴ G01R *31/02*

U.S. Cl. 324—72.5 23 Claims



1. A probe body having a first probe-tip terminal for connection by way of a probe tip to a test point, a second probe-tip terminal for connection to a stimulus probe, and a cable port for connection by way of at least one cable to a measurement instrument, and comprising:

probe circuitry having an output terminal connected to the cable port and also having an input terminal,

a function generator, and

switch means having a first state in which the input terminal of the probe circuitry is connected to the first probe-tip terminal, a second state in which the input terminal of the probe circuitry is connected to the function generator, so that when the switch means are in the second state the function generator may be used to impress a signal having a predetermined waveform on the probe circuitry, and a third state in which the input terminal of the probe circuitry is connected to the first probe-tip terminal and the function generator is connected to the second probe-tip terminal.

4,758,780

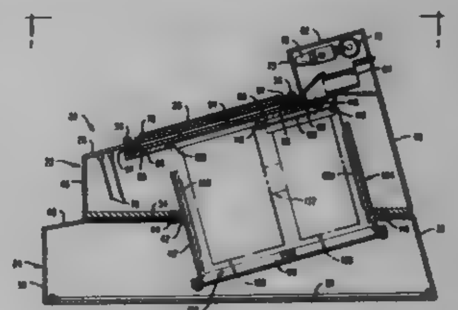
CIRCUIT BOARD TEST APPARATUS AND METHOD

Dennis R. Coon, Byesville; Richard M. Clhon, Kimbolton; Don E. Beam, Cambridge; Roy L. Hoisington, Jr., Cumberland, all of Ohio, and Charles D. Adkins, Ypsilanti, Mich., assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 8, 1986, Ser. No. 939,504

Int. Cl.⁴ G01R *1/02*

U.S. Cl. 324—73 PC 24 Claims



1. A circuit board test apparatus comprising:

A personality board provided with a plurality of probe means to engage test points in a circuit board to be tested;

a first back plane means provided with a plurality of probe means to engage predetermined points in the personality board, said first back plane means also being provided with a plurality of engaging means for engaging a plurality of driver-sensor boards;

a second back plane means parallel to and spaced from said first back plane means provided with bus means thereon and having a plurality of engaging means for engaging a plurality of driver-sensor boards and at least one controller board means;

a plurality of driver-sensor boards, positioned perpendicular to said first and second back plane means, each having a first portion engageable with said engaging means on said first back plane means and having a second portion engageable with said engaging means on said second back plane means; and

at least one controller board means having a portion engageable with said engaging means of said second back plane means;

whereby test commands may be conducted from said controller board through the bus means of said second back plane means to said driver-sensor boards and through said first back plane means and said personality board to a circuit being tested, and whereby the output from the board being tested is returned to said controller board [illegible]

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4,758,781
DA CONVERTER TESTING SYSTEM

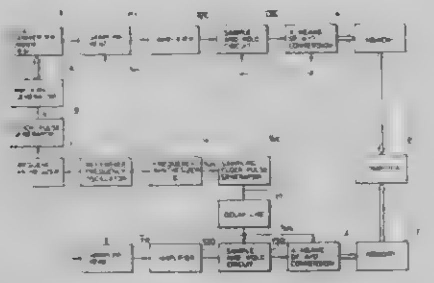
Toshiaki Ueno, and Fumio Ikeuchi, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 8, 1986, Ser. No. 938,966

Claims priority, application Japan, Dec. 6, 1985, 60-273304; Dec. 20, 1985, 60-285520

Int. Cl.^{4} G01R *31/28;* H03K *13/00*

U.S. Cl. 324—73 R 16 Claims



11. A DA converter testing system comprising:

a pattern generator which repeatedly generates digital codes to be applied to a test DA converter;

clock generating means which generates clock signals for regulating a repetition period of the output digital codes of the pattern generator;

first waveform sampling means which receives an analog output signal of the test DA converter;

first AD conversion means which receives the output of the first waveform sampling means;

second waveform sampling means which receives the output of the pattern generator;

second AD conversion means which receives the output of the second waveform sampling means;

sampling clock generating means which applies clocks of a period greater than the period of waveform repetition of the analog output signal of the test DA converter to the first waveform sampling means, the first AD conversion means, the second waveform sampling means and the second conversion means;

memory means which stores the respective output data of the first AD conversion means and the second AD conversion means; and

computing means which analyzes the data stored in the memory means.

4,758,782
METHOD AND APPARATUS FOR INSPECTING PRINTED CIRCUIT BOARD

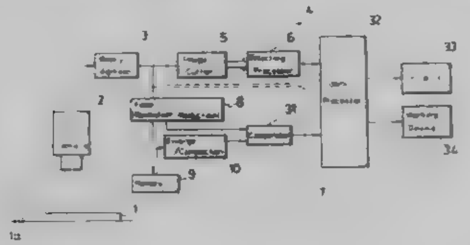
Kouji Kobayashi, Ashikaga, Japan, assignor to Kowa Company Ltd., Aichi, Japan

Filed Sep. 10, 1986, Ser. No. 905,922

Claims priority, application Japan, Sep. 11, 1985, 60-199588

Int. Cl.^{4} G01R *31/02*

U.S. Cl. 324—73 PC 5 Claims



1. An apparatus for inspecting printed circuit boards to detect defective printed circuit patterns formed thereon, comprising:

a. image scanning means for scanning a printed circuit pattern of said printed circuit board to produce a pattern image in the form of a plurality of image data;

b. binary digitizing means for digitizing the image data of said printed circuit pattern to produce a plurality of corresponding binary image data;

c. first inspection processing means including,

extracting means for extracting local binary image data composed of a central bit image and peripheral bit images having a pre-determined bit configuration and being spaced apart from each other, from the binary image data generated by said binary digitizing means, and

detection means composed of a memory device for receiving said extracted local binary image data as an address input and outputting stored data indicating whether a defect exists or not in a pattern area from which said local binary image data is extracted;

d. second inspection processing means including,

converting means for converting the binary image data generated by said binary digitizing means into binary image data of lower resolution than that of the binary image data entered into said first detection means,

image data storage means for storing resolutionlowered binary image data of a master printed circuit board, which are scanned, digitized and converted in terms of the resolution by said scanning means, digitizing means and converting means,

enlarging and reducing means for enlarging and reducing the resolution-lowered binary image data of the master printed circuit board read out from said image data storage means, and

detection means for detecting defects of the printed circuit board to be inspected, by comparing the image data of the printed circuit board whose resolution is lowered by said converting means, with the enlarged and reduced master image data produced by said enlarged and reducing means; and

e. output processing means for combining detection results from said first and second detection means to produce output data which can be utilized in a predetermined output device.

4,758,783
COMPENSATION NETWORK FOR COMPENSATING THE FREQUENCY RESPONSE OF A SPECTRUM ANALYZER

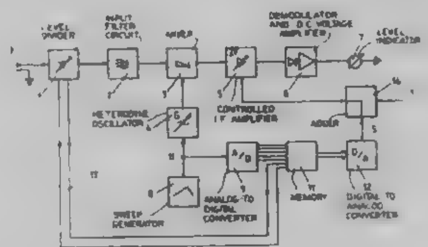
Klaus Danzeisen, Graefelfing, Fed. Rep. of Germany, assignor to Rohde & Schwarz GmbH & Co. KG, Fed. Rep. of Germany

Filed Sep. 28, 1987, Ser. No. 101,442

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1986, 3634528

Int. Cl.^{4} G01R *33/20*

U.S. Cl. 324—77 B 7 Claims


LEVEL DIVIDER
INPUT FILTER CIRCUIT
MIXER
DEMODULATOR AND D.C. VOLTAGE AMPLIFIER
LEVEL INDICATOR
HETERODYNE OSCILLATOR
CONTROLLED I.F. AMPLIFIER
ADDER
A/D
D/A
SWEEP GENERATOR
ANALOG-TO DIGITAL CONVERTER
MEMORY
DIGITAL TO ANALOG CONVERTER

1. A network for compensating the frequency response of a spectrum analyzer, comprising:

a mixer including an input for receiving a high-frequency input signal, a heterodyne signal input, and an output;

heterodyne means including a sweep voltage generator and a variable frequency heterodyne oscillator connected to and controlled by the sweep voltage of said sweep voltage generator and connected to said heterodyne input of said mixer;

a level varying circuit including an input connected to said output of said mixer, a level control input, and an output for providing a compensated signal;

an analog-to-digital converter including an input connected to said sweep voltage generator, and a plurality of outputs;

a memory storing frequency-dependent digital control values which are proportional to the sweep voltage, said memory including a plurality of inputs connected to said outputs offset analog-to-digital converter and a plurality of outputs, said frequency-dependent digital control values read from said memory in response to said sweep voltage; and

a digital-to-analog converter including a plurality of inputs connected to said plurality of outputs of said memory for converting the digital output thereof into an analog signal, and an output connected to said level control input of said level varying circuit for varying the level of the signal being processed.

4,758,784
AIR CORE GAUGE WITH ZERO POINTER RETURN

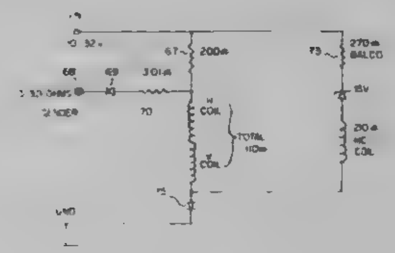
RELATED APPLICATION

John D. Baker, Naperville, Ill., and Ray J. Gallagher, Hot Springs Village, Ark., assignors to Stewart Warner Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 798,435, Nov. 15, 1985, abandoned. This application Jan. 27, 1987, Ser. No. 8,079

Int. Cl.^{4} G01R *1/20, 11/02*

U.S. Cl. 324—146 17 Claims



13. An air core gauge for driving a mechanical indicator proportionally to the value of a remote condition, comprising: a magnetic rotor, at least two angularly related coils surrounding the rotor, input signal means responsive to the remote condition for varying the current flow through the coils and the resulting mmfs to drive a mechanical indicator connected to the rotor from a zero position to a maximum value position, fixed force means for continuously biasing the indicator toward its zero position generally in force and directional alignment with the mmf of one of the coils, said fixed force means being spaced axially a substantial distance from both the coils and the rotor on the side of the coils opposite the rotor and the indicator so that the force of the fixed force means can be varied during gauge calibration without affecting the magnetic rotor.

4,758,785
PRESSURE CONTROL APPARATUS FOR USE IN AN INTEGRATED CIRCUIT TESTING STATION

Dale R. Rath, Gales Creek, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Sep. 3, 1986, Ser. No. 903,356

Int. Cl.^{4} G01R *1/06, 31/02*

U.S. Cl. 324—158 P 19 Claims

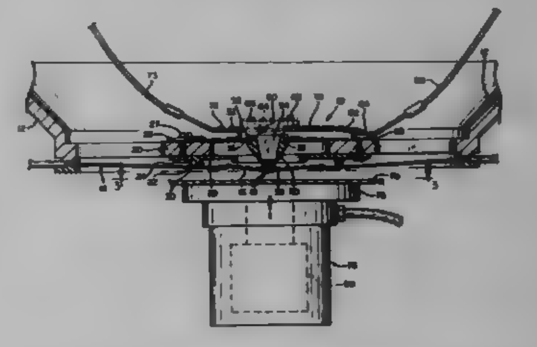
16. A pressure control apparatus for use in an integrated circuit testing station having a probe, and lift means beneath said probe for elevating an integrated circuit upward toward and against said probe, said pressure control apparatus comprising:

a support structure;

a pressure pad movably attached to said support structure directly above said probe;

means for resiliently attaching said pressure pad to said support structure in a manner permitting the vertical movement of said pressure pad relative to said support structure, said means comprising a resilient retaining member having a center portion to which said pressure pad is attached, said support structure comprising a ring-shaped member having an open center portion therein, said resilient retaining member being attached to said ring-shaped member at a position thereon wherein said pressure pad on said resilient retaining member is positioned within said open center portion of said ring-shaped member;

sensor means associated with said pressure pad for stopping an upward movement of said integrated circuit against said probe when a desired pressure level exerted by said integrated circuit against said probe has been reached, said



sensor means comprising an elongate conductive memer secured to said resilient retaining member, said elongate conductive member having first and second ends, said first end being electrically connected to said lift means, said sensor means further comprising a conductor pad secured to said support structure and insulated therefrom, said conductor pad being electically connected to said lift means, said second end of said elongate conductive member being normally in contact with said conductor pad, and coming out of contact with said conductor pad when said integrated circuit reaches said probe and exerts said desired pressure thereon; and

tension adjustment means for controlling the amount of pressure necessary to bring said second end of said elongate conductive member out of contact with said conductor pad on said support structure, said tension adjustment means comprising a retaining block having means therein for engaging said second end of said elongate conductive member in a manner wherein said second end is urged downward toward said conductor pad on said support structure.

4,758,786
METHOD OF ANALYZING SEMICONDUCTOR SYSTEMS

Dean G. Hafeman, San Bruno, Calif., assignor to Molecular Devices Corporation, Palo Alto, Calif.

Filed Aug. 6, 1986, Ser. No. 893,926

Int. Cl.^{4} [illegible]

U.S. Cl. 324—158 D 23 Claims

1. A method of analyzing selected regions of a semiconductor system, said method suitable to determine the uniformity of distribution of structural defects at the surface of the semiconductor, said method also suitable to determine the uniformity of distribution of structural defects in a dielectric material

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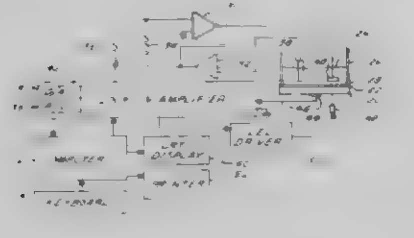
associated with the surface of the semiconductor, said method comprising the steps of:

applying an adjustable bias potential to a semiconductor system to produce an electric field within the semiconductor system,

directing a beam of electromagnetic radiation onto a selected region of the semiconductor system in which said electric field exists to induce a photocurrent output from the semiconductor system.



adjusting said bias potential to vary one or more charateristics of said electric field, said characteristics selected from the group of characteristics consisting of direction and magnitude,

measuring the photocurrent output induced by said beam as a function of said bias potential, and

determining the uniformly of distribution of structural defects in said selected region of the semiconductor system from said measured photocurrent output.

4,758,787

PROCESSING QUADRATURE SIGNALS

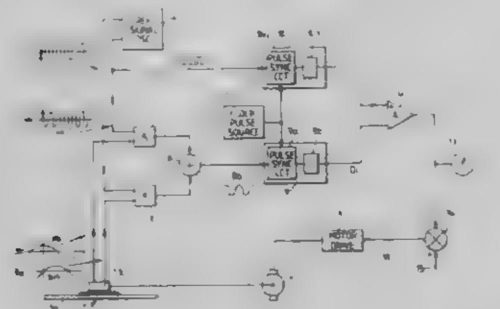
Colin K. Howley, Stonehouse, United Kingdom, assignor to Renishaw plc, Wotton-under-Edge, United Kingdom

Filed Jul. 30, 1987, Ser. No. 79,452

Claims priority, application United Kingdom, Aug. 8, 1986, [illegible]

Int. Cl.⁴ G01P *3/60*

U.S. Cl. 324—161 **7 Claims**



1. A device for processing AC input signals which are in quadrature, in order to produce an output representative of the frequency of the input signals, comprising:

a reference generator for generating a reference signal having a reference frequency,

frequency shift means for generating, from the quadrature input signals and the reference signal, a frequency-shifted signal which has a frequency being that of the reference signal, frequency shifted by the frequency of the input signals,

first conversion means for receiving the frequency-shifted signal and producing a DC output which directly represents the frequency thereof,

second conversion means for receiving the reference signal and producing a DC output which directly represents the frequency thereof, and

means for comparing the outputs of the first and second conversion means to derive said output representative of the frequency of the input signals.

4,758,788

METAL DETECTOR FOR INTAKE OF FIELD CHOPPER

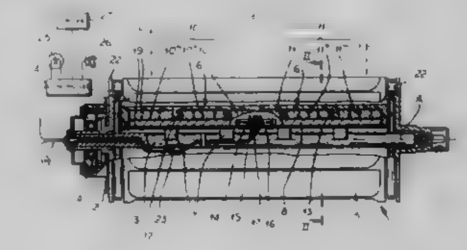
Burkhard Weiss, Weigsdorf-Köblitz; Arthur Hauschild, Sebnitz, and Erich Herrmann, Polenz, all of German Democratic Rep., assignors to Veb Kombinat Fortschritt Landmaschinen, Neustadt, German Democratic Rep.

Filed Dec. 23, 1986, Ser. No. 946,427

Claims priority, application German Democratic Rep., Dec. 24, 1985, 285427

Int. Cl.⁴ A01D *75/28;* **G01R** *33/12;* **G08B** *21/00*

U.S. Cl. 324—243 **6 Claims**



1. An apparatus for detecting magnetically sensible objects in a crop stream longitudinally passing a predetermined location, at the intake end of the conveyor of a field chopper, the apparatus comprising:

an elongated support at the location extending transversely adjacent and spaced from the crop stream and having a pair of transverse ends and a center therebetween;

a magnet assembly on the support having

  a north pole unit directed from one side of said magnet assembly between one of the ends and the center of the support transversely of the support and of the stream toward the crop stream,

  a south pole unit directed from said one side of said magnet assembly parallel to the north pole unit from between the other end and the center of the support transversely of the support and of the stream toward the crop stream,

said apparatus further comprising:

  a magnetically permeable return element extending between the pole units on a side of said assembly opposite said one side, the assembly forming between the pole units a magnetic field having lines of force extending on said one side mainly transversely through the stream and on said opposite side through the return element;

respective north and south sensing coils at least partially surrounding the respective pole units, whereby a magnetically sensible object perturbing the field will generate respective currents in the coils;

conductors connecting the coils in series such that the currents generated therein by perturbation of the field by a magnetically sensible object are added together; and

control means connected to the coils for reacting when the currents exceed a predetermined minimum.

4,758,789

ESR SPECTROMETER HAVING SPLIT-RING RESONATOR

Mitsuhiro Ono; Tateaki Ogata; Kokusho Sha; Michiya Suzuki, all of Yamagata, and Ekuo Yoshida, Tokyo, all of Japan, assignors to Jeol Ltd., Tokyo, Japan

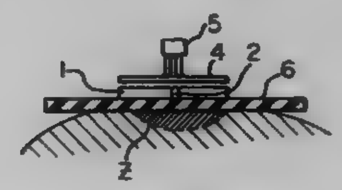
Filed Apr. 15, 1987, Ser. No. 38,646

Claims priority, application Japan, Nov. 7, 1986, 61-264922

Int. Cl.⁴ G01R *33/20*

U.S. Cl. 324—316 **3 Claims**

1. An ESR spectrometer equipped with a split-ring resonator comprising a cylinder which is made of an electrically conductive material and provided with a slit extending along the central axis of the cylinder,



said cylinder being mounted on one surface of a sheet of an insulator, such that the other surface of the shet may be brought to bear upon the specimen to be investigated.

4,758,790

ENGINE ANALYSERS FOR CAPACITOR DISCHARGE IGNITION SYSTEMS

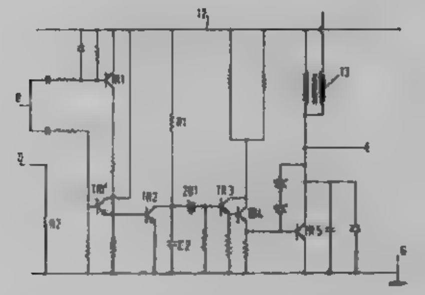
Christopher J. Hunt, Bridgwater, England, assignor to FKI Crypton Limited, Somerset, England

Filed Sep. 10, 1986, Ser. No. 905,527

Claims priority, application United Kingdom, Sep. 12, 1985, 8522600

Int. Cl.⁴ G01R *13/42;* **F02P** *17/00*

U.S. Cl. 324—379 **6 Claims**



1. An adaptor for interfacing an engine analyser to a capacitor discharge ignition system, said adaptor comprising means for detecting a pulse on the primary of the coil of the ignition system, means for producing a coincident pulse of increased rise time and a coil; the coil of the adaptor being such as to produce, when said coincident pulse is applied to the primary thereof, an ignition pulse the rise time of which is of sufficient length to permit normal diagnosis of various parameters of the engine to be carried out by the engine analyser.

4,758,791

UNIVERSAL SECONDARY HIGH VOLTAGE SENSOR

Rinaldo R. Tedeschi, Newington, and Randal J. Carter, South Windsor, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 28, 1986, Ser. No. 936,047

Int. Cl.⁴ G01L *3/26*

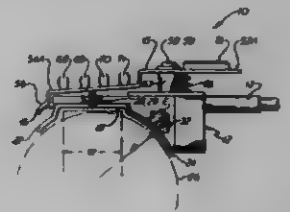
U.S. Cl. 324—402 **3 Claims**

1. Apparatus, for use with a plurality of different configuration internal combustion (IC) engine ignition systems, for providing a current signal indication of the sensed magnitude of the voltage signal provided to the engine spark plug wires by the ignition system coil, comprising:

a dielectric material substrate, having first and second mounting surfaces, and including electrical connector [illegible]

a capacitive sensor plate fastened to said second mounting surface with electrical contact between said plate, said first mounting surface, and said electrical connector means, said plate having a substantially curved major surface adapted for sensing the electromagnetic field (EMF) of an integral coil ignition system to provide the current signal indication of the sensed sparkplug voltage signal magnitude to said electrical connector means; and

a wire retaining arm having a plurality of spark plug wire holders at on one end and having a lever at another end thereof, said wire holders adapted for receiving the EMF of sparkplug wires of a distributorless ignition system



(DIS) ignition, said arm being pivotably mounted on said first mounting surface to operate in a closed position to provide electrical contact with said sensor plate to conduct the DIS EMF current signal to said plate, and operable in an open position for securing a standard ignition coil wire between the arm and the plate to couple the coil wire EMF to the sensor plate, the sensor plate presenting all EMF signals to said connector means.

4,758,792

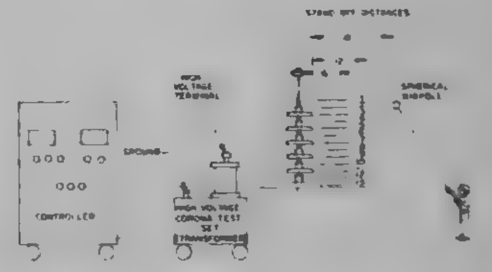
METHOD FOR UTILIZING A SPHERICAL DIPOLE PROBE FOR DETECTING FAULTS IN HIGH VOLTAGE TRANSMISSION LINE INSULATORS

James J. Polonis; John P. Harrell, Jr., and Melvin J. Johnson, all of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Sep. 13, 1985, Ser. No. 776,155

Int. Cl.⁴ G01R *29/12, 19/00;* **G01N** *31/02*

U.S. Cl. 324—552 **16 Claims**



1. A method of detecting faults in an insulator having an associated electric field, comprising the steps of:

placing an electric field detection means in a first electric field associated with a first insulator;

moving said detection means to a plurality of points within said first electric field without allowing said detection means to physically contact said first insulator;

obtaining a first set of data from said detection means at each of said points in said first electric field;

processing said first set of data, thereby obtaining a numerical respresentation of the strength of said first electric field at each of said points;

placing said electric field detection means in a second electric field associated with a second insulator;

moving said detection means to a plurality of points within said second electric field without allowing said detection means to phyically contact said second insulator, said points in said second electric field corresponding to said points in said first electric field;

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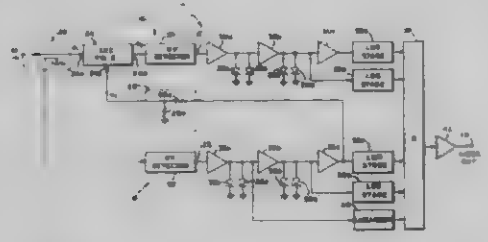
obtaining a second set of data from said detection means at each of said points in said second electric field;
processing said second set of data, thereby obtaining a numerical representation of the strength of said second electric field at each of said points;
comparing the strength of said first and second electric fields at each of said points;
generating an error signal for each said point at which said strength of said first electric field differs from said strength of said second electric field, each said error signal being proportional to the magnitude of difference between said first and second electric fields; and
correlating each said error signal with the location of a fault on said second insulator.

4,758,793
DETECTOR LOG VIDEO AMPLIFIER

Marc R. Sheade, Newark, and Paul A. Murphy, Sunnyvale, both of Calif., assignors to Raytheon Company, Lexington, Mass.
Filed Feb. 10, 1987, Ser. No. 13,100
Int. Cl.⁴ G06G *7/24;* H04B *1/16*
U.S. Cl. 328—145 **25 Claims**

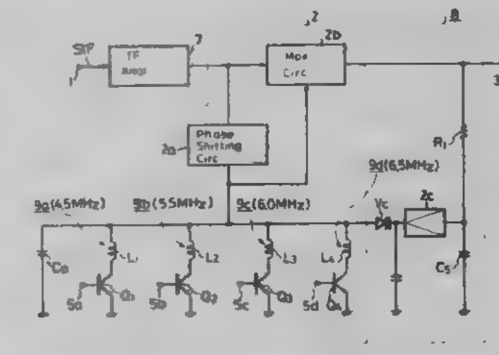


1. In combination:
a pair of radio frequency detectors having input terminals coupled to an input port;
means, responsive to an output of a second one of the pair of detectors, for producing a control signal in accordance with the power level of a radio frequency signal at the input port; and
means, disposed between the input port and the input terminal of a first and second ones of the pair of detectors, for coupling a first portion of the radio frequency signal at the input port to the input terminal of the first one of the pair of detectors and for coupling a second portion of the radio frequency signal at the input port to the input port of the second one of the pair of detectors, said coupling means being responsive to said control signal for attenuating the level of such radio frequency signal coupled to the input terminal of the first one of the pair of detectors below a predetermined power level as the level of the radio frequency signal at the input port equals or exceeds the predetermined power level.

4,758,794
SOUND INTERMEDIATE FREQUENCY DISCRIMINATOR

Masumi Ogawa, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jun. 25, 1987, Ser. No. 66,226
Claims priority, application Japan, Jul. 2, 1986, 61-155629
Int. Cl.⁴ H03D *3/00*
U.S. Cl. 329—140 **8 Claims**

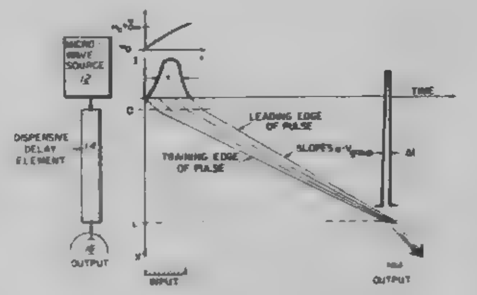
1. A sound intermediate frequency discriminator comprising:
frequency detecting means including a plurality of resonance means for detecting a plurality of respective sound intermediate frequencies which are different from each other, each of said resonance means being formed of winding means having a respective fixed inductance value and capacitive means;
a plurality of switching means selectively operable for selecting one of said plurality of reasonance means and thereby adapting said frequency detecting means for detection of the respective sound intermediate frequency;



a variable reactance element connected in common with said plurality of resonance means and controllable for correcting any deviation of a tuned frequency of said selected one of the resonance means from the respective sound intermediate frequency; and
direct current feedback loop means for feeding an average output voltage from said frequency detecting means to said variable reactance element for controlling the latter.

4,758,795
MICROWAVE PULSE COMPRESSION IN DISPERSIVE PLASMAS

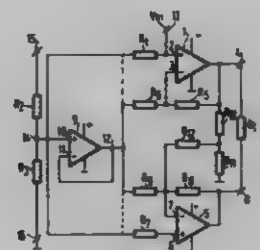
Barrett H. Ripin, Bethesda, and Wallace Manheimer, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Jul. 1, 1986, Ser. No. 880,866
Int. Cl.⁴ H01S *1/00;* H01P *1/00;* H01J *25/34*
U.S. Cl. 330—4 **13 Claims**



1. A pulse compression apparatus for multiplying the power of microwaves by a factor of 10–100 times by compressing microwave pulses, comprising:
means for injecting a dispersive plasma into a waveguide where the plasma subsequently allows microwaves of different frequencies to travel at different velocities,
means for making the plasma steady-state, and
means for introducing a chirped microwave pulse signal into the plasma thus shortening the microwave pulse signal to multiply the power of the microwave pulse signal as microwaves of different frequencies are compressed by the plasma.

4,758,796
BRIDGE AMPLIFIER OPERATING FROM AN ASYMMETRICAL POWER SUPPLY

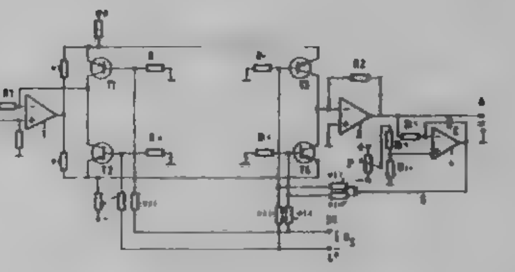
Bernardus Verhoeven, and Martinus J. van den Bungelaar, both of Nijmegen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 27, 1987, Ser. No. 7,297
Claims priority, application Netherlands, Feb. 7, 1986, 8600292
Int. Cl.⁴ H03F *3/68*
U.S. Cl. 330—84 **5 Claims**



1. A bridge amplifier connected between two connection terminals of an asymmetrical supply voltage comprising:
a voltage divider connected between said connection terminals having a tap for supplying substantially one half of said supply voltage;
a buffer amplifier having an input connected to said voltage divider tap, and an output;
a first amplifier having a first amplifier non-inverting input coupled to said voltage divider tap and connected to an input signal terminal, an inverting input, and an output connected to said inverting input through a resistor and also connected to one terminal of a load; and
a second amplifier having a non-inverting input which is coupled to said voltage divider tap, an inverting input, and an output connected through a resistor to said inverting input, and connected to a second terminal of said load; and
means for connecting said output of said buffer amplifier to said inverting input of said first amplifier and said inverting input of said second amplifier.

4,758,797
AMPLIFIER WITH COMPRESSOR AND EXPANDER FUNCTION FOR GROUND SYMMETRICAL ELECTRICAL SIGNALS

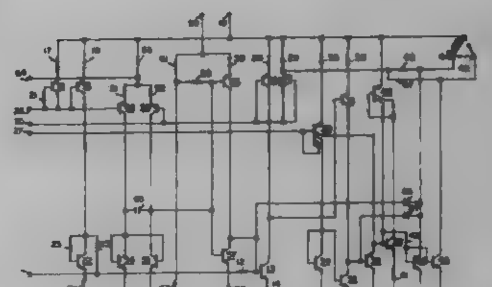
Jürgen Wermuth, Peine, Fed. Rep. of Germany, assignor to ANT Nachrichtentechnik GmbH, Backnang, Fed. Rep. of Germany
Filed Jul. 17, 1986, Ser. No. 886,442
Claims priority, application Fed. Rep. of Germany, Jul. 18, [illegible]
Int. Cl.⁴ H03F *1/20;* H03G *3/18*
U.S. Cl. 330—149 **9 Claims**



1. An amplifier with a compressor and expander function for positive and negative half-waves of ground symmetrical signals comprising in combination: a signal input terminal; compressor circuit means, having its input connected to said input terminal, for compressing negative and positive half-waves of an input signal; expander circuit means, having its input connected to the output of said compressor circuit means and its output connected to an amplifier output terminal, for expanding positive and negative half-waves of an input signal; circuit means for applying a variable desired voltage to at least one of said expander or compressor circuit means to control the slope of the respective expansion or compression characteristic for at least one half-wave polarity to control the gain of the amplifier; and control circuit means for reducing distortions in the output signal from said amplifier caused by even number harmonics, said control circuit means including means, connected to said output terminal, for determining the arithmetic mean value of the signal at said output terminal and feeding a corresponding control value to said expander or compressor circuit means to change the slope of the expansion or compression characteristic for said at least one half-wave polarity relative to the other half-wave polarity so as to reduce said distortions.

4,758,798
OUTPUT AMPLIFIER

William A. Johnson, Minneapolis, Minn., assignor to Cross Technology, Inc., Eden Prairie, Minn.
Filed Apr. 10, 1987, Ser. No. 36,918
Int. Cl.⁴ H03F *1/34*
U.S. Cl. 330—293 **19 Claims**



1. An amplifier having an input and an output, said amplifier comprising:
a first controlled current controller having an input and an output such that current flowing at said first controlled current controller output is controlled in amount by signals occurring on said first controlled current controller input, said first controlled current controller input serving as said amplifier input;
a second controlled current controller having an input and an output such that current flowing at said second controlled current controller output is controlled in amount by signals occurring on said second controlled current controller input, said second controlled current controller input being electrically connected to said first controlled current controller output, said second controlled current controller output serving as said amplifier output;
a third controlled current controller having an input and an output such that current flowing at said third controlled current controller output is controlled in amount by signals occurring on said third controlled current controller input, said third controlled current controller input being electrically connected to said first controlled current controller output;
a fourth controlled current controller having an input and an output such that current flowing at said fourth controlled current controller output is controlled in amount by signals occurring on said fourth controlled current controller input, said fourth controlled current controller output

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being electrically connected to said first controlled current controller output; and

first and second feedback impedances each having first and second terminating regions between which each exhibits a selected impedance, said first and second feedback impedance first terminating regions each being electrically connected to said fourth controlled current controller input, said first feedback impedance second terminating region being electrically connected to said second controlled current controller output, and said second feedback impedance second terminating region being electrically connected to said third controlled current controller output

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4,758,799
BROADBAND, HIGH SPEED VIDEO AMPLIFIER

Kesse Ho, Westminister, and Bradley B. Cain, Walnut, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Apr. 13, 1987, Ser. No. 37,913
Int. Cl.^{4} H03F *3/68*
U.S. Cl. 330—311 9 Claims

1. A broadband, fast rise time and fall time, video amplifier which comprises:

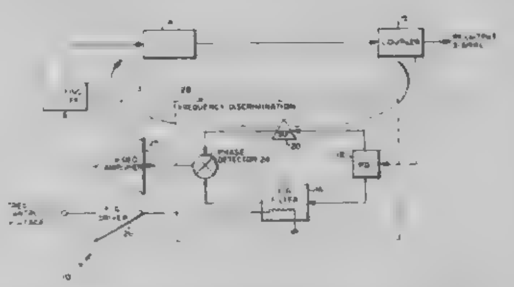
(a) a main cascode amplifier having a video signal input and an amplified video signal output; and

(b) current boosting means coupled to said main cascode amplifier for causing, whenever the video signal abruptly changes in a first direction, a current spike to be added to current across an output portion of the main cascode amplifier in a manner causing the rise time of the amplified video signal to be shorter than the rise time which would otherwise be provided by the main cascode amplifier in the absence of the current boosting means and for causing, whenever the input video signal abruptly changes in a second, opposite direction, a current spike to be subtracted from the current across said main cascode amplifier output portion in a manner causing the fall time of the amplified video signal to be shorter than the fall time which would otherwise be provided by the main cascode amplifier in the absence of the current boosting means.

[redacted]
LOW NOISE MAGNETICALLY TUNED RESONANT [redacted]

Robert DiBiase, Carlisle; Zvi Galani, Bedford; Raymond C. Waterman, Jr., Westford; Ernst F. R. A. Schloemann, Weston, and Ronald E. Blight, Framingham, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Apr. 2, 1987, Ser. No. 33,306
Int. Cl.^{4} H03L *7/06*
U.S. Cl. 331—1 R **54 Claims**



1. A magnetically tuned resonant circuit, comprising:

(a) means for producing magnetic flux;

(b) means for providing a magnetic flux path, having a pair of opposing spaced surfaces;

(c) a magnetically inert member having an aperture in said inert member, said member being disposed between said pair of opposing spaced surfaces;

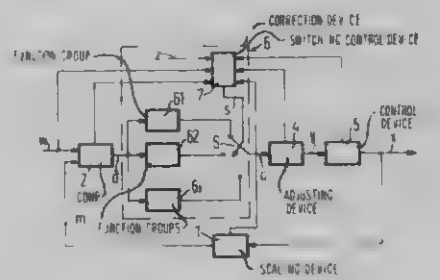
(d) a gyromagnetic member disposed through the aperture in said inert member, with said inert member disposed to have said magnetic flux directed through said gyromagnetic member; and

(e) means, disposed proximate to said pair of opposing, spaced surfaces, for reducing those variations in the magnetic flux directed through said gyromagnetic member that are not caused by mechanical loading of the flux path means.

4,758,801
DYNAMIC CONTROL SYSTEM WITH SWITCHABLE FILTER-FUNCTION GROUPS

Dieter Draxelmayr, Villach, Austria, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 7, 1986, Ser. No. 882,583
Claims priority, application Fed. Rep. of Germany, Jul. 11, [redacted]
Int. Cl.^{4} H03L *7/00*
U.S. Cl. 331—8 **28 Claims**

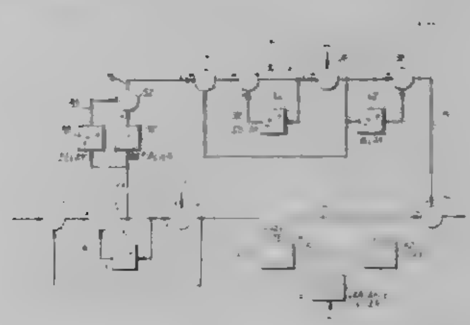


1. Dynamic control system comprising at least one control loop which contains a comparator, wherein a controlled variable is determined and compared with a reference variable for forming a control difference; a correction device responsive to the control differences for providing the control variable; an adjusting device having inputs, being responsive to the control variable operating to provide a given characteristic; a control device connected to the adjusting device; the controlled variable being derived by the adjusting device cooperating with the control variable derived from the control device as the output variable; at least one further control loop that can be coupled to said control variable of the dynamic control systems, at least two of said control loops each including at least one functional group; said functional groups having different characteristics, at least one of which is intermittently connected in a signal path of the control difference for generating the controlled variable, said functional groups being connected in parallel; at least one of said control loops including a switch for switching-in at least one of said functional groups being connected in parallel into the signal path of the control difference for generating the controlled variable; and an interference and a reference variable; said switch being switched under control of at least one of: the adjusting device, the control system, a comparator, a scaling device, system parameters of the control system, an inteference variable, the reference variable and a time variant variable.

[redacted]
[redacted]

Thomas Jackson, Hanwell, United Kingdom, assignor to Plessey Overseas Limited, Ilford, United Kingdom

PCT No. PCT/GB86/00092, § 371 Date Nov. 24, 1986, § 102(e) Date Nov. 24, 1986, PCT Pub. No. WO86/05046, PCT Pub. Date Aug. 28, 1986
PCT Filed Feb. 21, 1986, Ser. No. 925,631
Claims priority, application United Kingdom, Feb. 21, 1985, 8504543
Int. Cl.^{4} H03L *7/00*
U.S. Cl. 331—10 **2 Claims**

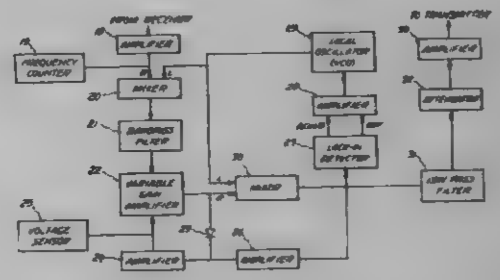


1. A fractional N synthesiser comprising a voltage controlled oscillator for producing an output signal which is afforded to a phase detector via a variable divider to provide a control signal for the voltage controlled oscillator in the presence of a phase difference between a reference signal from a reference source and the signal afforded thereto from the variable divider, the synthesiser being provided with first and second accumulators, the first and second accumulators each having a combiner means for receiving a digital input, a digital controller the input of which is connected to the output of the combiner means, a digital slicer means the input of which is connected to the output of the digital controller, and feedback means between the output of the digital slicer means and the combiner means, second combiner means being provided for combining the outputs of the first and second accumulators, wherein the improvement lies in the provision of a multiplier the input of which is connected to the output of the digital controller of the first accumulator, a third combiner means connected between the output of the multiplier and the input of the second accumulator, second feedback means connected between the input to the multiplier and the third combiner means and a delay means in the second feedback means, whereby in operation an output signal from the second combiner means is provided in which the interpolation sidebands of the first accumulator caused by quantisation errors in the first accumulator are cancelled, and means being provided for setting the division ratio of the variable divider in dependence upon said output signal from the second combiner means.

4,758,803
MARGINAL OSCILLATOR FOR ACOUSTIC MONITORING OF CURING OF PLASTICS

Lewis J. Thomas, III, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 13, 1987, Ser. No. 73,250
Int. Cl.^{4} B29G *7/00*; H03B *5/00*
U.S. Cl. 331—65 **10 Claims**



1. A marginal oscillator for acoustic monitoring of the curing of a fiber-reinforced plastic comprising:

a mold containing a sample of said plastic whose resonant frequency and attenuation change during curing and are indicative of the degree of cure;

transmitting and receiving transducers on said mold to generate and receive ultrasonic waves that pass through said plastic;

a variable gain amplifier whose gain is adjusted by a gain control signal and which has a positive feedback loop comprised of said mold with its sample and said transducers;

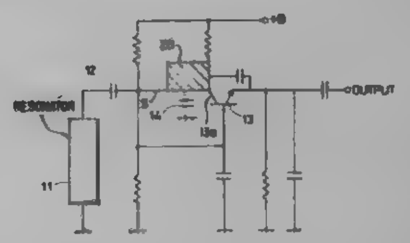
an amplitude control feedback loop having means to detect the amplitude of the amplifier output signal and to produce said gain control signal to adjust amplifier gain such that said output signal is substantially constant; and

means for measuring said resonant frequency and amplifier gain which are respectively related to the velocity and attenuation of sound in said fiber-reinforced plastic.

[redacted]
FREQUENCY STABILIZED HIGH FREQUENCY [redacted]

Atsushi Inoue; Tsukasa Sezaki, and Toshiaki Fujimura, all of Nagaokakyo, Japan, assignors to Murata Manufacturing Co., Ltd., Nagaokakyo, Japan

Filed Jan. 21, 1987, Ser. No. 5,544
Claims priority, application Japan, Jan. 27, 1986, 61-16409
Int. Cl.^{4} H03B *5/18*
U.S. Cl. 331—99 **2 Claims**



1. A high-frequency oscillator comprising:

a dielectric substrate having formed on one surface thereof a microstrip line including a land area formed as an enlarged end portion of said microstrip line;

[redacted]

a transistor forming a high frequency oscillator with said resonance means, said transistor having a collector con-

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nected to said land area and to said resonance means through a first capacitor which is connected to said land area, a base connected to a reference potential, and an emitter connected to provide an output of said high-frequency oscillator; and

a second capacitor for stabilizing high frequency oscillation formed by said land area and a common counterelectrode on a second surface of said dielectric substrate opposite to said land area, said land area having an area such as to provide a predetermined capacitance of said second capacitor;

wherein the dimensions of said land area forming said second capacitor are insufficient to cause said land area to constitute a reactive component such as would create a series resonant circuit with the capacitance of said second capacitor that would resonate at a frequency in a normal frequency range of said oscillator.

4,758,805

HIGH FREQUENCY INTERFERENCE PREVENTION FILTER FOR ELECTRIC INSTRUMENTS

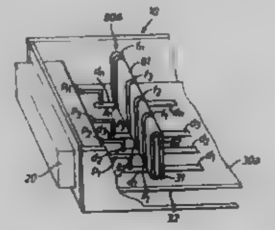
Toworu Yamazaki, Kariya, and Takashi Sakurai, Nagoya, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Oct. 24, 1984, Ser. No. 664,292

Claims priority, application Japan, Oct. 28, 1983, 58-203203; Oct. 31, 1983, 58-204378

Int. Cl.^{4} H01P *1/20, 1/203*

U.S. Cl. 333—12 **9 Claims**



1. A high frequency filter for an electric instrument including a casing of conductive metal insulated on a stationary structure, an internal electric circuit arranged within said casing and having a connection terminal spaced from an inner wall of said casing, and a connector mounted on a peripheral wall of said casing for connecting the connection terminal of said internal electric circuit to an external electric circuit, the high frequency filter comprising:

a folded insultation thin plate extending between said connector and the connection terminal of said internal electric circuit, said insulation thin plate having a fold extending in between and physically separating said connector from said internal electric circuit, the length of said insulation thin plate between said connector and said connection terminal, as measured up and over said fold, being larger than the distance between said connector and said connection terminal of said internal electric circuit; and

a pair of conductive thin plates secured to opposite surfaces of said insulation thin plate and extending along said fold of said insulation thin plate, one of said conductive thin plates extending up and over said fold between said connector and said connection terminal and being electrically connected at one end thereof to said connector and at the other end thereof to the connection terminal of said internal electric circuit, and the other conductive thin plate being connected to a portion of said casing to provide a short circuit, said fold and said another conductive thin plate cooperating so as to reduce the effects of noise in said internal electric circuit.

4,758,806

ANTENNA EXCITER FOR AT LEAST TWO DIFFERENT FREQUENCY BANDS

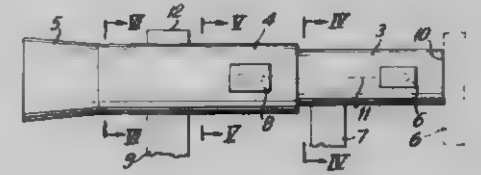
Günter Möhring, Langenhagen, and Reimer Nagel, Hanover, both of Fed. Rep. of Germany, assignors to kabelmetal electro Gesellschaft mit beschränkter Haftung, Hanover, Fed. Rep. of Germany

Filed Aug. 28, 1987, Ser. No. 90,670

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1986, 3630501; Oct. 11, 1986, 3634772

Int. Cl.^{4} H01P *5/12*

U.S. Cl. 333—135 **7 Claims**



1. An antenna exciter for at least two different frequency bands, comprising

a first and a second tubular polarizing duplexer;

a first group and a second group of two waveguides of rectangular cross section for the guidance of linearly polarized electromagnetic waves connected respectively, to said first and said second duplexers;

both said polarizing duplexers having a circular inside cross section, the inner diameters of the two polarizing duplexers being different such that said second duplexer has a larger inner diameter than said first duplexer, the two polarizing duplexers being arranged contiguously one behind the other, a feed horn being located at a free end of said second polarizing duplexer, said first polarizing duplexer having a constant inside diameter over its entire length; and wherein

the two groups of waveguides are connected to the respective polarizing duplexers to feed waves in two perpendicular planes of polarization, the two duplexers having the same two planes of polarization, the two waveguides connected to the second polarizing duplexer being connected at two axially spaced places which are 90 degrees apart in circumferential direction about a longitudinal axis of the polarizing duplexer;

the second polarizing duplexer also has a constant inside diameter over its entire axial length;

diametrically opposite the point of connection of that waveguide which lies closest to the feed horn, there is disposed within the second polarizing duplexer an iris which is closed off by a short-circuit plate; and wherein

said exciter comprises a first pair and a second pair of two inwardly projecting bars disposed on said second polarizing duplexer on diametrically opposite sides thereof, respectively, between the feed horn and said closest waveguide, and between the places of connection to said second duplexer of the two waveguides; and wherein

the axial length of the two pairs of bars corresponds approximately to one-half the waveguide wavelength of waves guided in the first polarizing duplexer, the two bars of said second pair of bars lying between the feed horn and the site of conenction of said closest lying waveguide in a common plane which extends parallel to the longitudinal axis of said second duplexer and to the longitudinal axis of said closest lying waveguide; and

the two bars of the first pair of bars lie between the connections of the two waveguides of the first group in a second common plane which extends at right angles to the first mentioned common plane.

4,758,807

DISTRIBUTED CONSTANT TYPE ELECTROMAGNETIC DELAY LINE

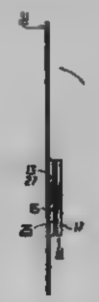
Kazuo Kameya, Tsurugashima, and Tsuyoshi Suzu, Kawagoe, both of Japan, assignors to Elmec Corporation, Saitama, Japan

Filed Dec. 17, 1985, Ser. No. 809,713

Claims priority, application Japan, Dec. 18, 1984, 59-[illegible][U]; Dec. 19, 1984, 59-[illegible][U]

Int. Cl.^{4} H01P 9/00

U.S. Cl. 333—156 **19 Claims**



1. A distributed constant type electromagnetic delay line comprising:

(a) an elongated bobbin comprising, laminated together:

(a1) a first substantially rectangular dielectric layer;

(a2) a second substantially rectangular dielectric layer; and

(a3) a substantially rectangular ground plane sandwiched between said first and second dielectric layers; and:

(b) an electroconductive strip, constituted by a single layer solenoid fixedly secured to said bobbin and wound in a spaced manner around the outer surface of said bobbin confronting said ground plane.

4,758,808

IMPEDANCE ELEMENT MOUNTED ON A PC BOARD

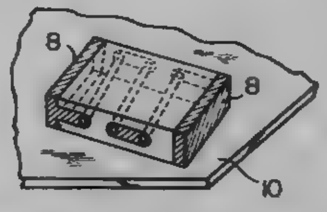
Yoshinori Suzuki, Toshio Watanabe, and Isao Yokoyama, all of Akita, Japan, assignors to TDK Corporation, Tokyo, Japan

Continuation of Ser. No. 641,852, Aug. 15, 1984, abandoned. This application Jun. 29, 1987, Ser. No. 68,115

Claims priority, application Japan, Aug. 16, 1983, 58-148701

Int. Cl.^{4} H05K *1/18, 7/06*

U.S. Cl. 333—185 **8 Claims**



1. An impedance element soldered to a printed circuit board having a surface, the impedance element comprising:

an essentially rectangular parallelepiped ferromagnetic chip having three pairs of surfaces, the first pair defining the thickness of the element therebetween and comprising a top side and an opposite bottom side facing said printed board, the second and third pair comprising respectively sides perpendicular to said printed circuit board surface; wherein the thickness is less than the distance between the opposite sides of said second pair;

at least one conductive and inductive through hole extending between the opposed surfaces of said second pair of surfaces;

a through hole conductor deposited on the surface of each through hole between said second pair of surfaces;

a pair of terminal conductors deposited over the whole area of said third pair of opposed surfaces, said terminal conductors being soldered to said circuit board;

surface conductors deposited on said second pair of opposed surfaces to connect said hole conductors in series with said terminal conductors; and

an insulation layer of ultraviolet setting resin including 10–15% weight of iron oxide covering said surface conductors;

wherein said terminal conductors and said surface conductors are deposited on the surfaces perpendicular to the printed circuit board and the surfaces of said terminal conductors and bottom side are free of the insulation layer.

[illegible]

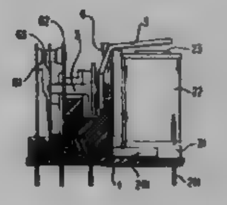
ELECTROMAGNETIC RELAY HAVING A MULTIFUNCTION RETAINING SPRING

Richard E. Bell, Princeton, Ind., assignor to Potter and Brumfield Inc., Princeton, Ind.

Filed Sep. 17, 1987, Ser. No. 97,996

Int. Cl.^{4} H01H [illegible]

U.S. Cl. 335—128 **8 Claims**



1. An electromagnetic relay including a contact assembly having at least one movable contact comprising:

(a) an insulative support structure having a generally planar base, a pair of sidewalls and a partition wall extending perpendicularly from said base, said partition wall extending across said base and connecting said sidewalls and each of said sidewalls including a longitudinal groove therein oriented perpendicular to said base and the pair of sidewalls each having a groove forming a pair of grooves facing each other;

(b) an electromagnetic coil having a central axis oriented perpendicularly to said base;

(c) a magnetic yoke having a base portion for supporting one end of the coil and a longitudinal portion extending parallel to the central axis and parallel to said partition wall and inserted into said pair of grooves and the longitudinal portion having an edge serving as a fulcrum;

(d) an armature having a generally angular shape wherein the inside of the angle includes a bearing surface pivoted on the edge of the fulcrum; and

(e) a retaining leaf spring secured to said yoke and having a spring retaining portion pressing said armature against said fulcrum;

said retaining leaf spring having an extended flat portion disposed between the longitudinal portion and said partition wall and attached to the longitudinal portion and having tabs protruding therefrom for engaging said partition wall for securing said yoke rigidly within the pair of grooves in said support structure.

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4,758,810
DEFLECTING YOKE

Manabu Tamura, Nagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 14, 1987, Ser. No. 38,100
Claims priority, application Japan, May 14, 1986, 61-108660
Int. Cl.⁴ H01F *7/00*
U.S. Cl. 335—210 4 Claims

armature may be moved to said second position by passing current through said winding in a manner that produces a magnetic field having a polarity which opposes the field presented by said permanent magnet thereby cancelling the attracting force of said armature to said permanent magnet and releasing said armature to move to said second position under the influence of said spring means, and wherein said armature may be moved from said second position to said first position by passing current through said winding in a manner that produces a magnetic field having a polarity which combines with the field presented by said permanent magnet to attract said armature to s

[illegible]
CYLINDRICAL NMR BIAS MAGNET APPARATUS EMPLOYING PERMANENT MAGNETS AND METHODS THEREFOR

Ronald F. Holsinger, Carlisle, Mass.; Robert L. Gluckstern, Rockville, Md., and John C. Fisher, Carpinteria, Calif., assignors to Field Effects, Inc., Acton, Mass.
Filed Jun. 24, 1987, Ser. No. 65,957
Int. Cl.⁴ H01F *7/02*
[illegible]—306 35 Claims

first and second surfaces of said plate, said first material selected from the group consisting of titanium and tin;

a vapor deposited thin film of a second material disposed on said films of first material, said second material selected from the group consisting of platinum, palladium, and ruthenium;

first and second conductive leads disposed adjacent each film of the second material, respectively; and

conductive adhesive captivating said first and se

to the respective films of said second mater

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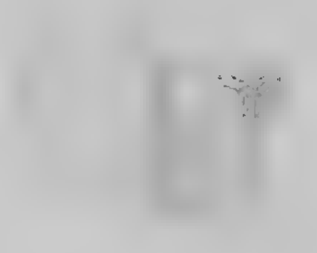

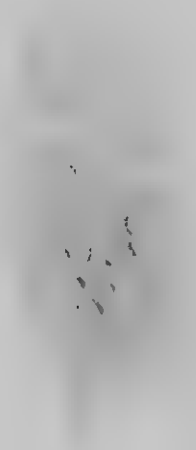

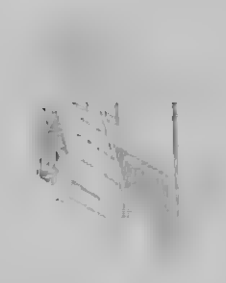

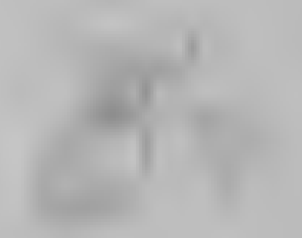

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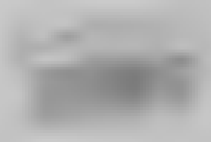

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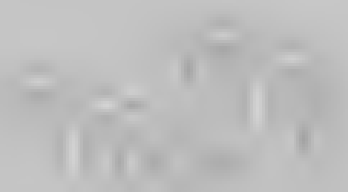

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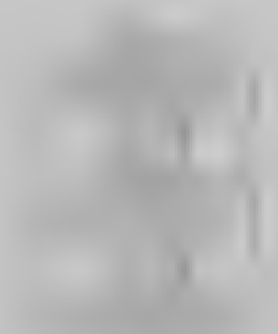

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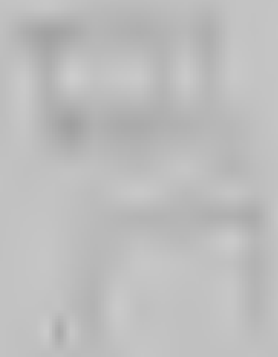
gnors to Coleco Industries, In



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26, 1986, Ser. No. 935 57

m of patent 14 years

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Sportnega Orodja N.Sol.O., Begunje na Gorenjsk

slavia

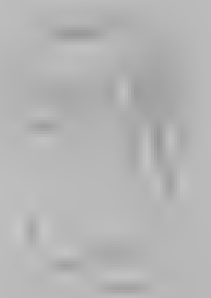
Filed May 14, 1985, Ser. No. 734 35

othy O. Armstrong, Bellev

International Products, Inc.,

Filed Dec. 12, 1985, Ser. No. 80

m of patent 14 years



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WATER-CLOSET

Knud Holscher, Virum, Denmark, assignor to IFö
...rsmamla, Sweden
No. 629,373, Jul. 10, 1984. This
21, 1987, Ser. No. 99,846

cat on Finland
of patent 14

296,820
SPOSABLE INSECTICIDE CANISTER FOR
ELECTRIC FOGGER
Suhajda, Racine County, Wis., assignor to S. C. J
Racine, Wis.
d Jun. 20, 1986, Ser. No. 877,550
Term of patent 14 years

296,821
CONTROL DEVICE FOR MEDICAL TREATME
nders B. Lundgren, and Alver I. Lundgren, both of C
Sweden, assignors to Gambro Lundia AB, Sw
Filed May 21, 1984, Ser. No. 612,6
ty, application Sweden, D
Term of patent 14 y

assignors to Sumitomo Electric Industries, Ltd., Osaka
Filed Jul. 25, 1985, Ser. No. 758,924
lication Japan, Jan. 25, 1985, 60
m of patent 14 years

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lucts Ltd., Ballerup, Denmark
ed Aug. 16, 1985, Ser. No. 766,
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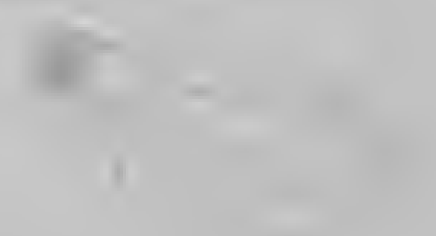

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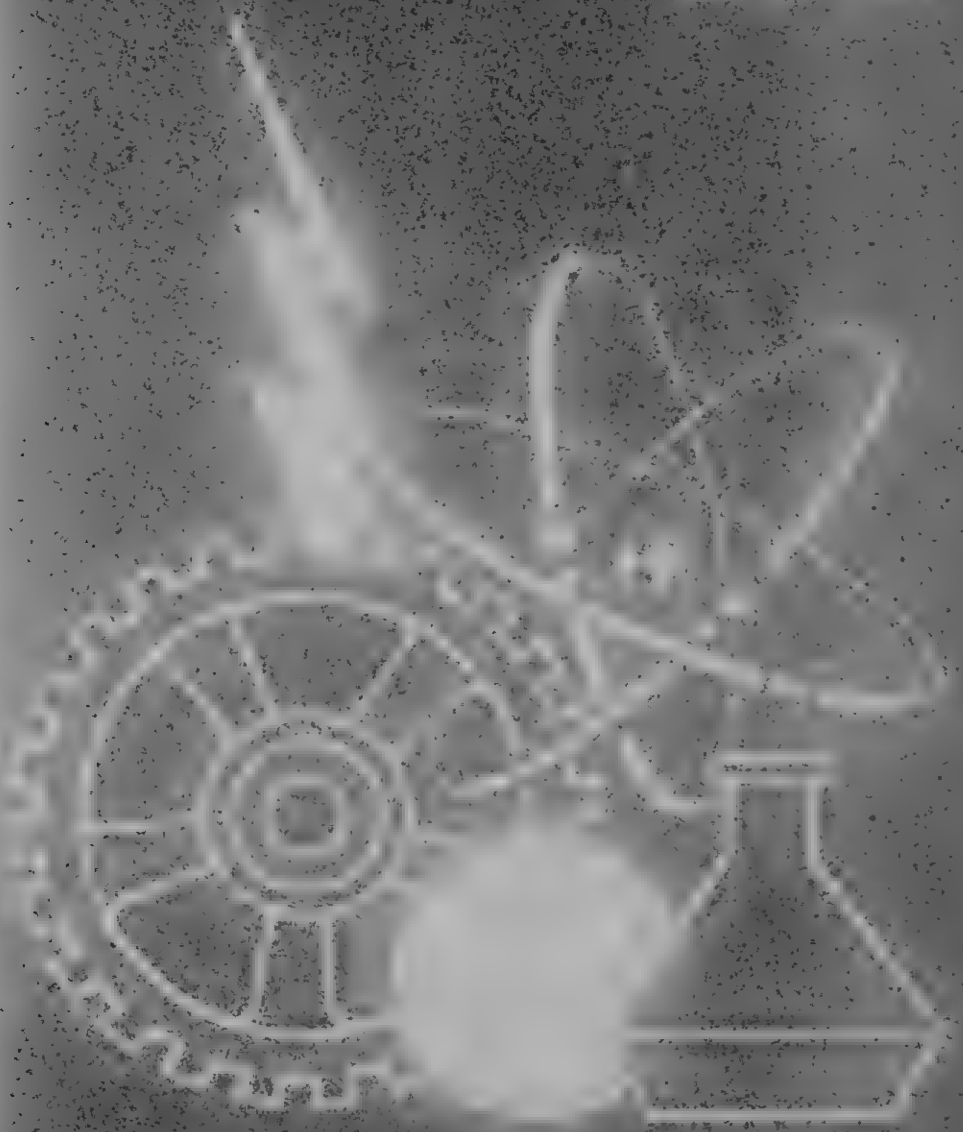

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FOR FABRICATING MOS DEVICES

TITY OF THRESHOLDS ON A SINGLE

SEMICONDUCTOR SUBSTRATE

rt J. Hubar, Bountiful; Kent F. Smith, Salt Lake City, mes N. Fordemwalt, Salt Lake City, and John W. Hanson, lt Lake City, all of Utah, assignors to General Instrument Corporation, Newark, N.J.

Reexamination Request No. 90/000,990, Apr. 22, 1986

Reexamination Certificate for Patent No. 3,868,274, issued Feb. 75, Ser. No. 430,025, Jan. 2, 1975

Int. Cl.⁴ H01L 21/26

E REEXAM

g layer on the surface of the sub- of the first insulating layer to form a of spaced openings therein for each device to ping the exposed substrate to form source and d each device, forming a second insulating layer ering the channel regions of the third and fou h an implantation mask and exposing the unit pe determining ions, removing the mask, ren ayers in the channel regions of each of t oxide layer in the channel region of ea ring the second and fourth devices with an mask, exposing and forming ch device, whe eshold voltage

B1 4,102,933

PROCESS FOR PREPARING A S-TRIALKOXY BENZE

Barrie D. Howarth, Hexthorte Doncester, England, and Ryszard J. Kobylecki, Princeton, N.J., assignors to Oce-Andeno B.V., Venlo, Netherlands

Reexamination Request No. 90/001,106, Oct. 6, 1986

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ration and Mitsui Toatsu Chemicals, Inc., both
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mination Request No. 90/000,850, Sep. 3, 1985

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effluent from step (a) to a
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t to 14-30% by weight,
nt stream from step (b) to a high
m under a pressure in the range of
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on dioxide separated in step
carbon dioxide separated in
d aqueous solution to form

complete combustion zone, respe
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B1 4,403,941
MBUSTION PROCESS FOR I
OXIDES

unio Okiura; Iwao Akiyama; Hiroshi Terada; Yoshijiro Arikawa; Akira Baba, and Shigeki Morita, all of Kure, Japan, assignors to Babcock-Hitachi, Ltd., Tokyo, Japan

Reexamination Request No. 90/001,423, Jan. 7, 1988.
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Allen C. Morgenthaler, Clearwater, Fla., assignor
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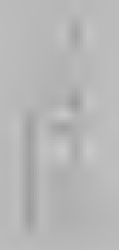

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Claims priority, application Fed. Rep. of Germa

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ug. 15, 1986, Ser. No. 896,713
Int. Cl.^{4} A01H 5/00

t variety of peach tree
ed which produces full

[illegible]

6,231
STRAWBERRY PLANT 'KEN SHELLY
arold A Johnson, Jr.; Amado Q. Amorao, and Joseph I
pejo, Jr., all of Watsonville, Calif., assignors to Dr
Strawberry Associates, Inc., Watsonville, Calif.
Filed May 12, 1986, Ser. No. 862,338
Int. Cl.^{4} A01H 5/00

[illegible]

CHRYSANTHEMUM PLANT NAMED OV
liam E. Duffett, Salinas, Calif., assignor to Yode
nc., Barberton, Ohio
Filed Feb. 26, 1986, Ser. No. 8
Int. Cl.^{4} A01H 5/00

[illegible]

eonard H. Shoesmith, deceased, l
May Victoria Shoesmith, execut
Plant Company, Parrish, Fla.

[illegible]

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PATENTS

GRANTED JUL

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ARMENT FOR SMALL CHILDREN
an, 3653 Perry Ave. N., Robbinsdale, M
Dec. 23, 1986, Ser. No. 945,63
Int. Cl.^{4} A41D [illegible]

[illegible] ngs to provide [illegible]

[illegible] pening being located at the top of said [illegible] provide access for the head of said user [illegible] ed of said user may extend therefrom, and [illegible] n having a continuous side edge extending [illegible] opening towards the third opening and a [illegible] edge extending from the second opening [illegible] hird opening thereby forming a generally [illegible] figuration narrowing at the bottom so that [illegible] of said user are fully extended outward, the [illegible] will drape about said user and the arms of [illegible] be covered by said body portion while the [illegible] nds of said user may be exposed, whereby selected extremities of the user may be easily and completely withdrawn within an upper portion of said body portion to attain a snuggling mode and selected extremities of the user may be easily extended toward [illegible] appropriate opening to provide mobili [illegible]

4,759,083
MEDICAL GARMENT
her, 13-D Community Cir., Douglasvill
Filed Apr. 3, 1987, Ser. No. 33,832
Int. Cl.^{4} A41D 9/00

Cl. 2—114

A surgical and examination garment, compris [illegible] body structure for encircling the body of a h [illegible] said body structure in [illegible] portion, said body stru [illegible] side, a top end and a bottom end, [illegible] ack panel including upper edge, lower edge, right edge [illegible] l left edge, said edges defining an upper-left corner and [illegible] right corner, and said back panel being attached [illegible] aid top end of said back [illegible]

Herman MadNick, and Ralph F. Goldman, both of F
Mass., assignors to Multi-Tech Corporation, Nat
Continuation-in-part [illegible]
applicatio [illegible]

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terial fastened to the inside of the e sides of the finger receiving portion in such a way that the pocket defines a partition that is suspended in the inside of the liner about which the fingers can be received to either side thereof, and which opens at the fingertips in such a way as to define a mouth for receiving a chemical heating element, and

means coupled to said liner for releasably closing said

FLUSHER DISINFECTOR FOR BED-PANS

rl S. P. Ottosson, Växjö, Sweden, assignor to Aktiebolaget Electrolux, Sweden

Filed Jul. 1, 1987, Ser. No. 68,327

laims priority, application Sweden, Aug. 15, 1986, 860344

Cl.⁴ A61G 9/00; E03D

pparatus for emptying and cleaning a bed pan and genic containers comprising a receptacle, a holder eceptacle for receiving a bed pan or the like in n, a motor-operated drive mechanism which is arranged to turn said holder with said bed an around a substantially horizontal first axis to an inverted osition so that the contents of said bed pan are emptied into d receptacle, a second axis about which said first axis is ally vertical plane, and a nozzle for against the interior of said turned bed r-operated drive mechanism which r with said inverted er said nozzle so that

4,759,086

DISPOSABLE RECEPTACLE FOR BODILY WAST

Charlotte A. Booth-Cox, 1909 Henry Ave., Middletown, Ohio 45042

Filed Jun. 27, 1984, Ser. No. 625,087

Int. Cl.⁴ A61G 9/00

ble sack means comprising

ottom portion comprising an oute and an inner, water-permeable layer forming, with t outer layer, a liquid-receiving enclosure.

(ii) a side portion extending from the bottom portion a comprising a waterproof side layer forming, with the bottom portion, substantially watertight holding means for human waste material, the inner, water-permeable layer being attached to the substantially holding means, and

(iii) a rim portion extending outwardly from the portion, and including means for securing said rim portion over said seat adjacent the opening in said seat whereby the side and bottom portio rim portion downwardly through seat when the receptacle is in use waste, and

(b) liquid-adsorbent means held in the liquid-rec sure to retain liquid waste material that pass

4,759,087

CLOSURE DEVICE FOR A SHOWER CURTAIN

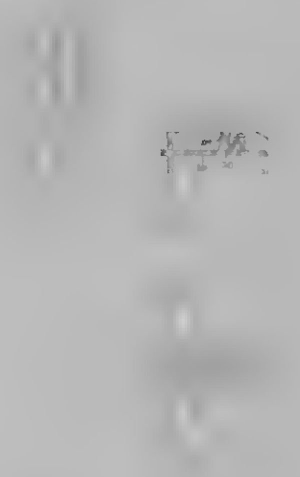
Alan Zeilinger, Cleveland, Ohio, assignor to Magic Americ Corporation, Cleveland, Ohio

Filed Jun. 8, 1987, Ser. No. 59,019

Int. Cl.⁴ A47K 3/22

U.S. Cl. 4—605 18 C

1. A closure device for a shower curtain comprising a wall attachment strip adapted to be mounted on a vertical w surface adjacent an end edge of a shower curtain, a curta attachment clip adapted to be attached to such curtain end edge, and means for releasably connecting said curtain attachment clip to said wall attachment strip, said curtain attachment clip comprising a strip member having a foldable flap protruding from one side of said strip member defining a groove with



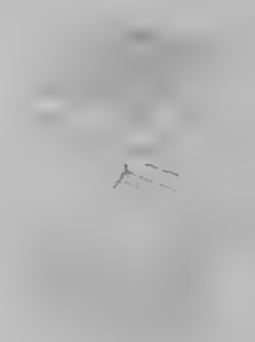
4,759,088

LF ALIGNING MATTRESS ASSEMB

Robert H. Brown, 5381 Seven Island Rd., Madison, Ga. 30650

Continuation of Ser. No. 758,333, Jul. 24, 1985, abandoned. This application Mar. 9, 1987, Ser. No. 23,961

Int. Cl.⁴ A47C



dation having a shallow top cavity flat bottom wall, and sloping downwardly convergent side walls extending between said top edges and said bottom wall, and a reversible mattress having on each side thereof a tapering projection and vertical exterior side walls extending between and connecting the trapering projections and including marginal sloping side walls which converge away from a median plane through the mattress, each tapering projection being adapted to interfit in nested centering relationship within said cavity of the mattress foundation with the sloping side walls of the cavity in engagement with the marng side walls of each mattress tapering projecti p edges of the cavity side walls being adjacent to

170 Oak St., Wi

a height lesser
ement defined
t adapted to sup

an

surfa

tween the first and second sheet members, outer peripheral edges of the first and sec together, one of said sheet members havi

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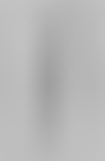
ATH OR SHOW
Roseburg, Oreg
Jan. 12, 1987, Ser. No. 2,373
Int. Cl.⁴ A47K 7/02

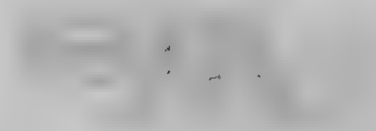
rary attachm
r stall or a wall surface adva
ing
wall attachment mean
forwardly therefrom, said base
reception of a hanger, a cen
id base,
having a head at
centrally dispo
said base and s
operable to hi
ll surface

4,759,092
INDUSTRIAL-TYPE SCRAPER
James J. Duddy, 514 N. Medcalf St., Lima, Ohio
Filed Aug. 5, 1987, Ser. No. 81,725
Int. Cl.⁴ B44D 3/16
15—236 R



1. An industrial-type scraper comprising in combination, an elongated handle, a flat rectangular support plate of substantially less length than said handle connected intermediately of its ends to one end of said handle, said support plate being disposed at an obtuse angle in side view of the handle and also at an obtuse angle to the handle in plan view thereof, a flat clamping plate similar in size to said support plate, a pair of bolt and nut means extending through aligned holes in said plates, and a scraping blade clamped between said plates with a sawtooth edge on said blade projecting beyond a pair of clamped edges of said plates

nd, assignor to R

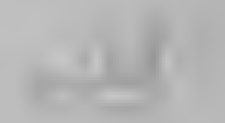


SCRUBBING MACHINE
Gary L. Palmer, Roselle, and Jerome E. Rau, Hoffman Estates, both of Ill., assignors to Hako Minuteman, Inc., Addison, Ill.
Filed Oct. 19, 1987, Ser. No. 109,925
Int. Cl.⁴ A47L 11/30

tank for storing clean solution and spent solution respectively and mounted on said chassis in side-by-side relation and having a common opening; dispensing means receiving solution from said solution tank for applying the same to the surface to be treated; recovery means carried by said chassis for recovering said solution after application to said surface and for depositing the recovered solution in said recovery tank; a molded pocket of a material and thickness sufficient to retain a preformed shape under its own weight and flexible enough to be inverted to a correspondingly similar inverted shape and defining a lateral opening; and means for mounting said pocket to said

tion does not

4,759,095
VACUUM CLEANER PICK-UP DEVICE
Harry L. Hoy, Jr., Dearborn, Mich., assignor to
Kutkowski, Dearborn, Mich., a part interest
Jul. 20, 1987, Ser
Int. Cl.⁴ A47



forward wall of the v
the magnetized material
per bumper, the mounting mean
ruded, open-ended element havi
g the length of the pick-up devi

ioned together by an
"H" shaped configurat
distance accommodating
extruded element,
r fastening one of said extruded eleme
ick-up housing, and means for fastening the other
ruded elements to the vacuum sweeper wall
the side walls of the second element being slide
eivable in the slot of the first extruded element
osition in which said side wall of the second
ement is disposed in a surface-to-surface fri

4,759,096

EEL BRACKET AND A MET
WHEEL BRACKET A
an W. Black, Hickory Corners,
International Corporation, S
Continuation of Ser. No. 86
which is a continuation of
abandoned, which is a continuation o
1983, abandoned. This application Ap

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4,759,098

NG DEVICE FOR ROLLERS BABY WALKER

t device for rollers

tors, adapted to be connected to a seat f the baby walker, each of said upper connectors including a rotating shaft secured thereon and a spring biased key member mounted on said upper connector,

ectors, respectively adapted to be con- oller of the baby walker, each of said including a circular sleeve secured thereon for mounting rotatably said rotating shaft of said rresponding upper connector thereon, said circular sleeve including a circumferential contacting surface for being abutted by said key member, and a key way in said circumferential contacting surface so as to receive said key member of said corresponding upper connector to prevent said lower connector from rotating relative to tor; and

for urging said key members against the bias action of said springs to a first position where said key members are spaced from said circumferential contacting surfaces and for releasing said key members to abut on said circumferential contacting surfaces in a second position,

reby, when said control mechanism is in the first position, said lower connectors can rotate relative to said per connectors so that said front rollers can move in any rection; and when said control mechanism is in the ud key member l lower conne

ctionally, and a

DOOR CLOSURE AND HOLDING MECHANISM IAVING A SLIDING ROD SLIDABLY MOUNTED I PIVOTING ROD AND A SLIDE RAIL

Francois Morano, Villa Tjandi Avenue Joachim, 06100 Nice, and Victor Mouriesse, Domaine de Fontbelle, 83870 Besse su Issole, both of France

Continuation of Ser. No. 771,003, Aug. 30, 1985, abandoned

This application Jun. 17, 1987, Ser. No. 63,733

Claims priority, application France, Sep. 14, 1984, 84 14318

Int. Cl.⁴ E05F 3/22

U.S. Cl. 16—64 8 Claims

r automatic closure of a d and for holding a door in a

(a) a housing for a return assembly mounted in a fixed position on said door,

a slide rail mounted in a fixed position on said frame g arm journaled on said housing, a means for g said pivoting arm and said slide rail, said pivoting arm being provided with means for receiving the means for connecting said pivoting arm and said slide rail,

(d) said means for connecting comprising a sliding rod having one end retractably mounted inside said means f receiving of said pivoting arm and another end mo fitted to said fixed slide rail

(e) a return assembly cooperatively associated with said housing, and

(f) means for automatically blocking movement of said sliding rod associated with said pivoting arm ing rod projects from said pivoting arm mined length corresponding to a given de of said door

4,759,100

METHOD OF MAKING AN END CLOSURE I OF SHIRRED FOOD CASING

Robert A. Beardsley, Osceola, Ark., assignor to Viskase Corporation, Chicago, Ill.

Division of Ser. No. 842,225, Mar. 21, 1986, Pat. No. 4,693,280.

This application Jun. 16, 1987, Ser. No. 62,750

Int. Cl.⁴ A22C *13/00*, B29C *53/08*

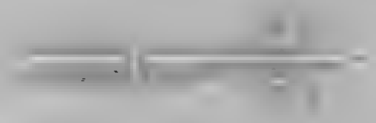
U.S. Cl. 17—45 11 Claims

7. A method for forming an end closure within the bore of a shirred stick of food casing comprising the steps of

(a) pulling a tab of casing across an opening of the bo one end of the stick,

(b) inverting the tab through the bore opening and forming thereby a cylinder of casing within the bore having a closed end buried within the bore and an open end facing towards tl

ing the cylinder of casing radially inwardly he rod and adhering it to the rod;



the course of said with llapsed cylinder of casing the bore opening, thereby wiping casing from the accordian-type pleats disposed within the bore

4,759,101

PPARATUS FOR HOLDING SMALL GAME A OR FISH DURING SKINNING, SCALING OR BUTCHERING OPERATIONS

t, 1512 Hodges Rd., Ruston, La. 71270

Filed Nov. 13, 1987, Ser. No. 119,967

Int. Cl.⁴ A22B *1/00*

ions, said appar

ective positioning of said serrated surfaces sed relationship with each other,

nd arm member, defining a second lower e, pivotally mounted to said support me ing selective positioning of said upper ser nd said second lower serrated surface in j onship with each other,

l arm member pivotally attached to said member, and

ourth arm member pivotally attached to said se member and to said third arm member, whereby nent of said members in relationship to each other e arges or diminishes the size of a triangular openi

OF A REVOLVING F

Giuseppe Verzilli, Wiesendangen, and thur, both of Switzerland, assign Ltd., Winterthur, Switzerlan

Filed Aug. 13, 19

Claims priority, applicati 3289 86

nally of the card nd cleaning brus

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controlling movement of the carrier
e predeterminately varied the spacing
iate path of movement of the cleaning
of flats at the flats cleaning position,
e cleaning movement of the cleaning
pacing is smaller than during the return move-

or selectively controlling movement of the
ier comprising control means for controlling the path
movement of the cleaning brush with respect to the set

he cleaning movement of the
val of the cleaning brush at the
using the carrier to move into a
e to the set of flats at the flats cleaning posi-

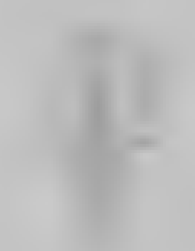
neans, before the passage of the cleaning brush
the flats cleaning position during the return
of the cleaning brush, causing the carrier to
position spaced from the set of flats at the flats

lditionally effecting a movement of the
ion spaced from the set of flats at the
uring the cleaning movement
assage of the cleaning brush
g position

4,759,103
Y OPERABLE FASTENER

Roy W. Henderson, 117 Knockview Drive, Tandragee

Filed May 14, 1986, Ser. No. 863,105
Claims priority, application United Kingdom, May 15, 1985,



1. A manually operable fastener for
to an anchorage, to safely support a hu
ud fastener compri
and bent into a substantially flat shape and including a
g; a second leg; an intermediate portion between the first
econd legs formed into a flat spiral spring which forms an eye, which is maintained under torsion in a normally closed condition of the fastener, and which is connected at one end to a proximal end of the first leg and at its other end to a proximal end of the second leg, the first and second legs subtending an acute angle therebetween; a first transverse member connected at one of its ends to a distal end of the first leg; a second transverse member connected at one of its ends to a distal end of the second leg, the first and second transverse members extending towards one another and including overlapping parts which lie in juxtaposed relationship one with another and are substantially parallel to one another in the normally closed condition of the fastener; a hook portion at the other end of the first
ncluding a shank extend-
ion, a bend portion that

second transverse member, the
loop portion to receive the hook
condition of the fastener, and a third transverse member having a part which lies in a plane which is substantially parallel to that of the second transverse member, which overlaps the first transverse member, and which has a connection to the retainer portion, and which is disposed on the other side of the first transverse member from the second transverse member, the retainer portion forming together with the hook portion and the overlapping parts of the first, second and third transverse members an essentially closed loop in the normally closed condition of the fastener; said fastener being arranged to receive a portion of a rope or strap which passes through the eye of the flat spiral spring, through the essentially closed loop and back through the eye of the flat spiral spring and being openable in an unloaded condition of the fastener by manually squeezing the first and second legs towards one another against the torison of the flat spiral spring thereby to disengage the hook portion from the loop portion of the retainer portion and said fastener further being arranged so that upon application of a load to said rope or strap so as to place the fastener in a loaded condition, said rope or strap squeezes the overlapping parts of said second and third transverse members one towards another so as to tend to exert a gripping action on the corresponding overlapping part of said first transverse member
h lies therebetween and to hold the overlapping parts of
st and second transverse members substantially parallel
another said fastener further including an automatically
sing spring clip lock to prevent inadvertent opening of
tener in its unloaded condition, which clip lock comprises a second length of wire or strand of smaller section than that of the first mentioned wire or strand bent to form a hook one end of which is secured to the retainer portion and the
her hooked end of which is engageable with the hook por
wherein the second length of wire is bent in half at a
n bend in a first plane before being bent into a double hook shape in a second plane substantially at right angles to said first plane.

4,759,104
BODY CAST

William B. Buerosse, 4950 NE. 27th Terr., L
Fla. 33064

Filed Aug. 22, 1986, Ser. No. 899,520

a first sheet metal member bent to form two sides separated by a bottom, each of said sides having a top ledge bent inwardly, remote from and parallel to said bottom, the edges of said sides and bottom being bent to receive a flat strip,

a pair of end members, each having an end sur
edges thereof bent therefrom to form a fla
received by said means for receiving an

re within the l
t liquid poured

l top ledges of said first

r portion including four sides, a bottor

said first liqui

d cover receivin
ding a first ga
r seal between s

nd Akira An
Murata Manufa

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t an
t and
defined by first and
ned within through

nant frequency characteristics of said
etric resonance element, and
aid polishing step and measuring step until
resonance frequency characteristics are at

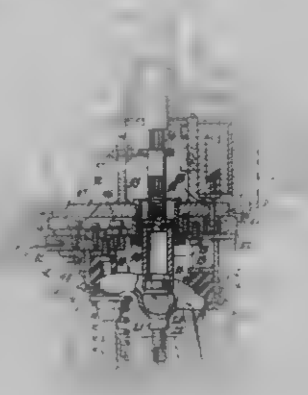
4,759,108
OOLING APPARATUS AND METHOD FOR ROBOTIC OR LIKE MECHANIZED INSTALLATION OF ROCKER ARM ASSEMBLIES

John W. Scharlacken, Orleans, Mass., and Glenn M. Kreek, Sterling Heights, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 1, 1987, Ser. No. 56,225

Int. Cl.⁴ B23P *13/00*

156.7 R 9 Claims



tevice for a robot or like
ssembly onto an engine cylinder bank with a
push rod and an aperture. said rocker arm asse
a rocker arm, pivot joint and bolt, said tooling d
combination:
ime having mean
l robot or like,
g a first end of

first axis when said bolt runner is turning
whereby said rocker arm assembly is installed to
engine cylinder bank in alignment with said respect
push rod and said valve spring

4,759,109
VARIABLE ANGLE RIVETER

Jack W. Mason, Grand Prairie, and Michael Blanc, Fort Wo both of Tex., assignors to LTV Aerospace & Defense C pany, Dallas, Tex.

Filed Nov. 13, 1986, Ser. No. 930,74

riveting means on said arms for coo
fasten a rivet through a workpiece positioned between said riveting means; support means supporting said body for pivoting about a horizontal axis of rotation, said support means being mounted on a base member; and
means for rotating said body upwardly from a substantially horizontal position to an ele
arms extend above said
means for receiving a work
axis and for accommodating riveting of a w
ing varying contours

4,759,110
PROCESS FOR SHRINK-FIT LOCKING A CYLINDRICAL CERAMIC PART INTO A FLANGE MADE OF A FERROUS MATERIAL, AND CERAMIC-METAL COMPOSITE BODIES

Wolfhart Rieger, Buch, and Jakob Widrig, Winterthur, both of Switzerland, assignors to Metoxit AG, Thayngen, Switzerland

Filed Apr. 7, 1986, Ser. No. 849,036

Claims priority, application Switzerland, Apr. 10, 1985 1524/85

Int. Cl.⁴ B23P *11/02*, F16B *4/00*

U.S. Cl. 29—447 10 Claims

1. A process for shrink-fit locking a cylindrical ceramic
ent into a flange component of ferrous material com

iding a flange component having a bore
at substantially room temperature,
roughening the inside surface of said bore,
providing a cylindrical ceramic component having an
side diameter d at substantially room
d is greater than D,
roughening the outside surface of a p

nge component so as t

ling said assembly to roo
flange component shrink-fits about said cylindr
ramic component

4,759,111
METHOD OF FORMING REINFORCED BOX-SELECTION FRAME MEMBERS

Ivano G. Cudini, Woodstock, Canada, assignor to TI Automotive Division of TI Canada Inc., Toronto, Canada

Filed Aug. 27, 1987, Ser. No. 90,952

Int. Cl.⁴ B23P *17/00*

1. A method of forming a box-section frame member having a reinforced area and of which at least an elongate portion is of uniform cross-section having at least two generally opposed and planar sides, the method comprising

(a) providing a tube and a tubular sleeve within w
tube can be received, the tube and sleeve each h
continuously smooth, arcuate cross-section,

(b) positioning the sleeve about the tube in an a
tube to be reinforced,

(c) deforming the tube and sleeve in a preliminary step
which the side walls of the tube and sleeve are deforme
inwardly in opposed areas of an elongate portion thereof which generally corresponds in position to the planar sides of the product frame member to provide the tube and sleeve with a continuously smooth arcuate cross-section having generally opposed, inwardly deformed, side walls

(d) enclosing the deformed tube and sleeve within a sectional die having at least two co-operating die sections which define an elongate passage of approximately the same elongate shape as the tube and sleeve and which is throughout of smoothly continuous cross-sectional profile having an at least approximately linearly profiled portion adjacent and parallel to each concavely curved side wall portion of the tube and sleeve, all transverse dimensions
the passage being at least equal to or larger than the de
formed tube and sleeve;

expanding the blank circumferentially by application
an internal fluid pressure until all exterior surfaces of th
tube and sleeve conform to the profile of
and the sleeve is mechanically locked t
separating the die sections and rem

**Jean A. McLean, South Hamilton, and Robert
nola, both of Mass., assignors to Emhart
Farmington, Conn.**

sequencing and inserting mach
omponents on a printed circuit board comprising
conveyor means, including uniformly spaced me
receiving an electrical component, for deliver
received electrical components to an insertion lo
component insertion means located at said insertio
tion for inserting said components into said print
board,
sequencer means for dispensing different
said receiving means in the sequence d
inserted into the printed circuit board,
replacement means located upstream of said
for dispensing an electrical component onto one
receiving means located at a selected replaceme
tion
means for detecting when a component ha
erly inserted by said component insertio
means for stopping said conveyor whe
means detects that a componen
inserted.
means for defining a plurality of e
ng means between the first component of a seque
he last component of the next downstream sequen
lurality of empty receiving means being selected
ne of said empty receiving means will be located
placement location when said stopping n

OB CLAMPING S

**Ernst J. Hunkeler, Fairport, N.Y., a
Works, Rochester, N.Y.**

Filed Jun. 10, 19

Int. Cl.⁴ B23Q

U.S. Cl. 29—56

1. A system
tween a pair

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Werner Babel, Achweg, Fed. Rep. of Germany, assignor to MAHO Aktiengesellschaft, Pfronten, Fed. Rep. of Germany
g. 5, 1987, Ser. No. 81,845
ation Fed. Rep. of Ger

es of tool holders adapted to

ted to said work table and adapted to
chronism with said swivel arms, said
l support is in the rest position beneath
vering said tool support and the tools

unted to said swivel arms, said
; a plurality of protective caps

RICALLY CONTROLLED AUTOM ANGING MACHINING CENTER HA BAR-TYPE SPINDLE

Ervin J. Kielma, West Allis, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.
Division of Ser. No. 319,781, Nov. 9, 1981, Pat. No. 4,558,508
This application Sep. 9, 1985, Ser. No. 774,128
Int. Cl.⁴ B23Q 3/157; B23C 5/26

a frame,
a spindle head suppor
face.

uch may be rotated to produce rotation o

ended forwardly of the
means in the bar for firmly at
end of the bar for rotation

as been established t
id securing means enga

METHOD OF APPLYING CONTAINMENT PERMANENT MAGNET ROTOR

Donald W. Jones, Burnt Hills, N.Y., assignor to
tric Company, Schenectady, N.Y.
Filed Nov. 3, 1983, Ser. No. 548,5
Int. Cl.⁴ H02K 15/02

U.S. Cl. 29—598

1. A method of applying a pre-tension

ACTURE OF A R FOR A DYNA MACHINE

Kato, Ibaragi, Japan, assignor t

Filed May 12, 1986, Ser. No. 862,462
laims priority, application Japan, Oct. 25, 1985.
ortion of the term of this patent s
002, has been disclaimed.
Int. Cl.⁴ H02K 15/02

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HOD OF FABRICATING A MAGNETIC HEAD ASSEMBLY

shiro Noguchi, Nagaoka; Kazuo Kobayashi, Furukawa; Toru Sawada, Furukawa; Masao Okita, Furukawa; Yasunari Takayama, Yokohama, and Kazuo Kozumi, Furukawa, all of Japan, assignors to Alps Electric Co., Ltd., Japan

Filed Sep. 5, 1986, Ser. No. 904,494

Claims priority, application Japan, Sep. 10, 1985, 60-198420

rative contact with a magnetic disk, compris-

ate of conductive material with precut por

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porting plate and

nnecting lead w

ve ones of said p

prines

lead terminals

METHOD FOR SURFACE MOUNTING A COIL

Bernstein, Glen Cove, N.Y., assignor to Bel Fuse Inc., Jersey City, N.J.

Filed May 30, 1986, Ser. No. 869,686

Int. Cl.⁴ H01F 41/06, H05K 3/34

. 29—605 18 Claims

method for mounting a coil on a printed circuit board, ising

winding an insulated wire around an elongate core to form an elongate coil with opposite axial ends,

removing insulation from areas of said wire at locations near said ends of said coil, at a plurality of tap offs at predetermined longitudinal locations along said coil intermediate said ends, said locations having a spacing corresponding to the location of connection pads on said printed circuit board at which electrical connection between said coil and said printed circuit board is to be made,

mounting the coil on said printed circuit board, while aligning the locations on said coil where insulation has been removed from said wire to be in proximity with said

d Jun. 19, 1987, Ser. No. 63,97

Int. Cl.⁴ B23Q 35/02

1. A template guide tracking device for prov and rapid location of work stations, comprising

(a) a template track member provided therein, said groo stations located at adjacent groove, said groove being at least about 0.030 inch deep and 0.060 inch wide, said work stations being provided by openings extending through the template track member, said template track member being made movable in both lateral and transverse directions relative to an adjacent baseplate member,

(b) clamping means for removably a onto said template track member, a

(c) means for removably attaching said ber and baseplate member directly member of a work machine having tacting said groove, whereby multi be accurately located at the template groove intersections for convenient and rapid work o piece

9. A method for remotely locating a p a workpiece, comprising the steps of.

(a) placing a groove and workpiec

4,759,127

DEVICE FOR MOUNTING ELECTRONIC CONN

Herbert M. Weintraub, Tarrytown, N.Y., assignor Weintraub, W. Nyack and Barry A. Weintraub,

Filed Jun. 28, 1985, Ser. No. 749,670

facilitating manual

one end of said shaft

correspond to the

perm

plication of the

unting of the

nation or dam

er means at the

l driver means

the pair of mat

unting either

ent with the

METHOD AND APPARATUS FOR ELECTRONIC DEVICES WHICH EAC MEMORY

Masuaki Ohta, Chiba; Yoji Ishikawa, Saitama, and Haruk Shinoda, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 20, 1986, Ser. No. 865,001

Claims priority, application Japan, May 27, 1985,

Int. Cl.⁴ H05K 3/30, B23P 23/00

S. Cl. 29—832

1. A production system having means for perf

Smith, Brackney, both of Pa., and James N.Y., assignors to Universal Instruments

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ror between said tool and a holder for

n said piston and cylinder of said tool
a particular po
d to preferred p
ectively, to be experienced by said
ling to compression of said fluid in said

4,759,125

H FOR CUTTING AND SER
OTHER FOOD PROD

lzes, 91 Larkin Avenue, Markl
201

Filed Mar. 26, 1987, Ser. No. 30,1

dge portion,
e attached to and extending rearw
rear edge portion,
a second handle attached to and extending re
the rear edge portion of the second blade,
a releasable connector forming a releasable p
between the handles such that the blades
by means of the handles between a closed
e blades together have a generally V
tion with the forward edges of the blades
l substantially parallel and defining the ve
ped cross-section and in which a predeter
rmed between the blades and an open
h the forward edges of blades are separate
rising means retaining the connector to
n released and the connector being dis
placeable when released relative to both han
tion on a predetermined axis of the utensil
ually bisects the predetermined angle when
selectively varied while
rward edges of the first

IFE FOR DE-VEINING, PEELING
BUTTERFLYING SHRIMP

McCoy, and Alex G. Dorsett, both of
Houston, Tex. 77029

Filed Jun. 19, 1987, Ser. No. 64,7
Int. Cl.⁴ A22C 29/00

or de-veining, p
comprising

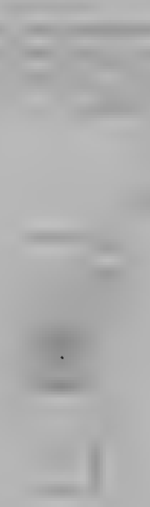
d knife blade sec
rdly thereof,
d elongated knife blade ha
guration and including
rtion disposed immediat
elongated knife blade further including a
portion integrally extending forwardly of
ate toothed blade portion and tapering fro
ith said intermediate toothed blade portion to a pointed
free end, said arcuate curvature approximating the
body curvature of a de-headed shrimp, said arcuate blade
portion having a first continuous cutting edge disposed
long the upper convex length of said blade between said
diate toothed blade portion and said knife tip and
utting edge disposed along a
ncave length of said blade and imn
nt said knife tip and communicating therewith, said
intermediate toothed blade portion having an upper edge
defining an upwardly inclined ramp extending from said
arcuate blade portion toward said handle, said upwardly
inclined edge carrying a plurality of cutting teeth that
have generally straight knife cutting-edges dispos
d cutting teeth b
lane of said elong
wherein said knife blade is adapted t
trate the body of the de-headed sh
insertable below the visceral cav
exiting the shrimp bod
ermitting said first and
uate blade portion to vert
rimp body through the visceral cavity along the path
l arcuate blade portion to a depth determined by th
th traversed by said lower second cutting edge th
t teeth of said inclined intermediate toothed
ion passing through said upper portion of said
slit in said shrimp body and engaging and removing the
vein in said visceral cavity as said toothed blade portion
passes therethrough, said inclined cutting teeth further
engaging the shell above said vertical slit in the shrimp
body for raising and separating the shell from the shrimp
body and then longitudinally cutting the shell in alignment
the longitudinal vertical slit made in the shrimp body
tating easy removal of the shell

LOOP
P.O. Box 8865, Greensboro, N
Jan. 12, 1987, Ser. No. 2,
Int. Cl.⁴ B26B 13/00

he finger loop a

mes for means
ted to be conti

TRANSMISSION DEVICE
oh, Fussa; Toshio Akashi, Omiya;
ocho, and Takanori Ebunuma, Higashi
ssignors to Komatsu Zenoah Co., Japan
Filed Feb. 9, 1987, Ser. No. 12,449



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Michael Goldowsky, Valhalla, N.Y., assignor to U.S. Philip Corporation, New York, N.Y.
…n of Ser. No. 797,105, Nov. 12, 1985, abandoned.
This application Apr. 6, 1987, Ser. No. 36,134
Int. Cl.⁴ G01B 11/26

…ad rod, and means for applying a … sition approximately two-thirds … length of said rod from said free end, said free end mai… a position on said longitudinal axis

4,759,131
METHOD AND APPARATUS FOR MARKING IMAGE POINTS IN PHOTOGRAMMETRIC SURVEYS

Herbert Fend, Maeder, Austria, assignor to Wild Heerbrugg AG, Heerbrugg, Switzerland
Continuation of Ser. No. 721,654, Apr. 10, 1985, abandoned.
This application Feb. 9, 1987, Ser. No. 13,177
Claims priority, application Switzerland, Apr. 24, 1984

1. Method for producing at least one mark in an element of photographic material having a coating of photographic emul… h a stylus oscillated at a frequency within the ultra… nge comprising the steps of:
… g said stylus against said element to such depth that a … netrates a superficial layer of the coat…

permanent structural deform… of the coating, said deforma… annular bead with emulsion… said bead constituting mark… moving the stylus away from said bead, and
moving the element to locate anoth… point on the element under the styl…

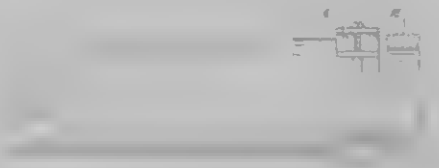
TAPE TRANSDUCER FOR THE INCREMENTAL PRECISION MEASUREMENT OF LINEAR QUANTITIES, WITH PREDETERMINED COEFFICIENT OF THERMAL EXPANSION

Giacomo G. Giacomello, Via Domenichino, 50, 20149 Milano, Italy
Filed Apr. 20, 1987, Ser. No. 40,156
Claims priority, application Italy, Apr. 22, 1986, 20168
Int. Cl.⁴ G01B 11/04
5 Claims

measuring trans… case, a rule in the form of a thin steel tape, prefer… and suspended at its ends in the support case and having …ed thereon the graticule of a measuring scale, as well as a rule reading head mounted in the case and slidable along the tape, the improvement comprising at least one tensioning bar fixed to the case at a single point and freely expansible in respect thereof for the remaining part, the ends of … of the rule being anchored to the ends of said b…

4,759,133
METHOD AND APPARATUS FOR AUTOMOTIVE WHEEL ALIGNMENT

Roger Macpherson, 185 Pleasant Way 1, Penfield, N.Y. 14526
Continuation of Ser. No. 874,423, Jun. 16, 1986, abandoned.
This application Apr. 13, 1987, Ser. No. 38,473
Int. Cl.⁴ G01B 5/255

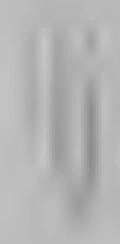


1. Portable wheel alignment apparatus for checking the alignment of the wheels of an automotive vehicle including a body having one end defining a base plane and adapted for removable and adjustable engagement with the end plane …

…ed to be removably mounted … calibrated while in said V-block … arallel to the apex of said V-bl… its face spaced graduatio… …brated to be read by said … get is spaced a predetermined distance from said …
… for supporting said target on the ground at a point spaced from said vehicle, and in confronting relation to said telescope,
said target being vertically adjustable on said sup… means relative to said ground and said vehicl…
means resiliently supporting said telescope … for rotation manually relative to said … calibration of said telescope,
said means resiliently supporting said telescope in said V-block comprising a resilient spring clip mounted on said body and engaging said telescope releasably to hold said telescope resiliently in seating engagement on said V…

4,759,134
FLEXIBLE LEVEL

Gurney D. Chrisley, P.O. Box 280, Ingleside, Tex. 7…
Filed Nov. 26, 1986, Ser. No. 936,645
Int. Cl.⁴ G01C 5/04



… ment for establishing the leve… ation with respect to another location spaced th…
… bing having a flow passag… … l flow passage to provid… … strument, and visually obs… indicia means located at opposite end portions … tubing for enabling said one location and another l… location to be determined relative to each other, a… a pair of diaphragms formed respectively at opposite en… portions of said tubing, the interiors of said diaphragms being in communication with the flow passage, said di… phragms being formed by softening the end portio… said tubing material and providing a compressed flu… the tubing to expand the softened end portions int… diaphragms having diameters respectively greater than the diameter of the tubing and a wall thickness less than the wa…

4,759,135
AIR DIFFUSER AND HAIR LIFTER ATTACHMENT FOR BLOW DRYER

Joseph C. Scivoletto, 8651 N.W. 27th St., Coral Springs, Fla. 33065
Continuation-in-part of Ser. No. 906,171, Sep. 11, 19…
… application Apr. 8, 1987, Ser. No. 35,737
Int. Cl.⁴ A45D 20/52

An air diffuser and hair lifter attachment for a blow dry…

… attachment is removed.

…herein the planes of said one end and said … base are skewed with respect to one anot… is shaped between said one end and said … to change the direction of the air flow the… direction of the air emitted from said d… direction for th… openings in said …

4,759,136
ATHLETIC SHOE WITH DY…

Douglas Stewart, Needham, and Juan A. Diaz, … of Mass., assignors to Reebok Internatio…
Filed Feb. 6, 19…
Int. Cl.⁴ A4…

…ond a to…

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SKI BOOT

Josef Lederer, Jetzendorf, Fed. Rep. of Germany, assignor to Salomon S.A., Annecy, France

Continuation of Ser. No. 926,100, Nov. 3, 1986, abandoned, which is a continuation of Ser. No. 815,177, Dec. 20, 1985, abandoned, which is a continuation of Ser. No. 561,635, Dec. 15, 1983, abandoned. This application May 26, 1987, Ser. No. 53,827

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1982, 3247516

The portion of the term of this patent subsequer

[illegible] has been disclaimed

n and an anklet rear portion, each of
tions being pivotally mounted on said
about an axis and includes means
ent of said axis in relation to said toe-

anklet portions a

4,759,138

FLOW STEERING SYSTEM

Timothy W. Grinsted, Ovingham, Englar

Machine Dynamics Limited, Northumberland, England

Continuation-in-part of Ser. No. 677,025, Nov. 30, 1984, Pat. No. 4,585,372. This application Dec. 16, 1985, Ser. No. 809,268

Claims priority, application United Kingdom, Dec. 19, 1984, 8432045, Dec. 19, 1984, 8432044; Oct. 3, 1985, 8524410

Int. Cl.⁴ F16L *1/04*, E02F *5/18*

54 8 Claims

a ground-engaging implement operable beneath water to
ed of the water along a working course when
o the implement, said
and second pivot means
omprising monitor means by which
he tow member and the implement can
ns to which said tow member is con-

neans, and said
acting forces t
v member, respe
said tow member having a directi
viewed in plan

4,759,139

BOTTLE IDENTIFICATI

d. David Ricks, 3341 Gettysburg Ave. North, N
5542

Filed Apr. 27, 1987, Ser. No. 43,0

Int. Cl.⁴ G09

h a removal overfitting dispe

generally pl luding an aper
ture being l dimensions s
ceive said
perp
por

termined shape

William D. I

Port Erin,

Tulsa, Okla.

Filed Aug. 6, 1986, Ser. No. 893,

Claims priority, application United Kingdom

PCT File

pper end of each of said
ds are connected to sa

HEET APPARATUS

1200-3 Befukatamine, Sinemach
in, Fukuoka-ken, Japan

Filed Jun. 16, 1986, Ser. No. 874,658

laims priority, application Japan, Jun. 18, 1985, 6
25, 1986, 61-25949[U]; Feb. 26, 1986, 61-43434

Int. Cl.⁴ G09F 9

Cl. 40

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t feeding sheet

(c) retaining means for holding said individual sheet in said first frame part and the remainder of said pile in said

(d) guiding means for guiding the separated individual sheet

end of the remainder of the

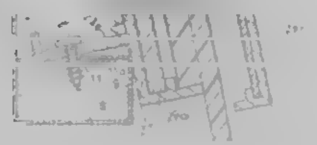
4,759,143

ILLUMINATED SIGN ASSEMBLY

Maurice Pomerleau, 3240 Jefferson Blvd., Windsor, Ontario, N8T 2W8

Filed Sep. 19, 1986, Ser. No. 908,597

Int. Cl.⁴ G09F 13/04



med of resil-

an opening in

wall having an inwardly di-

pen face, a forwardly directed

inwardly directed flange, an

xtending from the forwardly

with the inwardly and for-

inges an outwardly opening channel,

n flange extending rearwardly from the out

a sign frame mounted adjacent the open face and having a rearwardly directed lip provided with a laterally extend-ing abutment, and which snaps from an inclined position

nd return flange

4,759,144

AMBIDEXTROUS MAGAZINE RELEASE

James W. Egan, 14810 Lincoln St., SE., Minerva, Ohio 44657,

A. Blackburn, 306 Plain St., Malvern, Ohio

Filed Jul. 6, 1987, Ser. No. 69,5

a catch lock release member slidably received in said longitudinally extending opening of said magazine catch body,

resiliently compressably spring means held in said longitudinally extending opening resiliently compressed between said magazine catch body and said catch lock release member when said magazine catch lock body is inserted in and restrained in place in a hand grip of a gun receiver,

said catch lock body having a control extension thereon with a lock flange extending from one side thereof, said lock flange being adapted to engage a lock slot in a magazine received in said gun receiver to retain the magazine therein,

said magazine catch body normally being operatively positioned in and extending transversely throu

grip,

said control extension having a slot formed therein fa

outwardly of the hand grip,

a catch lock release lever having a lug thereon at its other end extending into said slot and being pivotally positioned therein to secure said catch lock release lever adjacent the side face of the hand grip,

a fulcrum member engaging said catch release lever intermediate its ends to provide a free end on said catch lock release lever, said fulcrum member bearing on an outer end of said catch lock release member, and

said catch lock release member being positionable to be restrained against axial movement whereb

plied to the free end of said catch

move it toward the hand grip will

BULLET DISPERSING MACHINE GUN

Edward P. Volansky, 58 Osborn Rd., Naugatuck, Conn. 06

Filed Dec. 15, 1986, Ser. No. 940,986

Int. Cl.⁴ F41C 23/00

1. An automatic and semi-automatic firearm ha

lar utility for effecting a circular shot pattern co

a stock (11) having a ball joint receiving so elongate barrel mounting member (13), w defining a slide arm window (36) and a trigger ha window (14),

firearm means (21) having an elongate barrel (35), a ball joint member (22), a trigger handle means (23), said firearm means being operatively mounted to said stock with said ball joint member being received within said ball joint receiving socket, and with said trigger handle means movably received and projecting through said trigger handle window;

shot pattern defining means (15) having a generally cone shaped member (16) affixed about said barrel, a constraining member (17) having a nut shape member (47) with wall portions (50) defining a central conically shaped bore 48) and a downwardly projecting slide arm (37) projecting through said slide arm window (36), and having an adjustment handle means (19) containing a slide bar (18) affixed to said slide arm,

gas actuated/propelled

plurality of channels

to the longitudinal

4,759,146

METHOD FOR UNDERMINING AN IMMERSED ROUND AND FOR GENERATING AN ASCENDING VATER CURRENT, AND DEVICE FOR IMPLEMENTI SUCH A METHOD

Roger Le Beon, Manoir de la Villeneuve, 56150 Baud, and Armel Jego, 14 rue Marcel Achard, 56600 Lanester, both of France

PCT No. PCT/FR85/00167, § 371 Date Feb. 25, 1986, § 102(e) Date Feb. 25, 1986, PCT Pub. No. WO86/00193, PCT P Date Jan. 16, 1986

PCT Filed Jun. 24, 1985, Ser. No. 852,639

Claims priority, application France, Jun. 27, 1984

Int. Cl.⁴ A01K 73/02

procedure for undermining underwater terrain and

g an upward rising current of water which comprises

lers (5a) and (5b) while at the same

forward movement in such a way

capable of lifting items lying on the

g them upwards accordi

e zone of turbulence (1

rein the action of the tw

llel, is combined so that

a) and (Rb) in relation

rs are moved in a directi

reated by the second cy

ith a tendency to escap

4,759,147

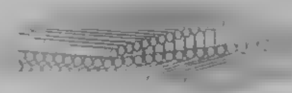
TER STRUCTURE TO ACCOMPLISH V HT-IN-WEIGHT AND TOUGH TUBULAR MENTS PARTICULARLY ADAPTED FOR THE CONSTRUCTION OF FISHING RODS

Luca Pirazzini, Bologna, Italy, assignor to Regiass S. gna, Italy

Filed Dec. 3, 1986, Ser. No. 937

Claims priority, application Italy, Dec. 3,

Int. Cl.⁴ B32B 5/12 A01K 8



e longitudinal axis of the fi

f aramide fibers, disposed

STIC CRUSTA

review, Minn., as

Sugar Loaf Shor

de walls f

paced slats

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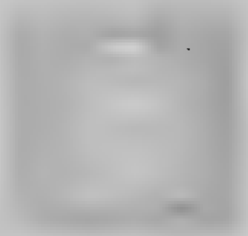
d engageable with the s



ushings on each side fitting
nding opposite side during

d means on opposite si

1,759,150
ICHER WITH
INSECTICIDE
obert Pierce, P.O. Box #307, Pittsburgh, N.H. 0359
Filed Feb. 27, 1987, Ser. No. 19,634

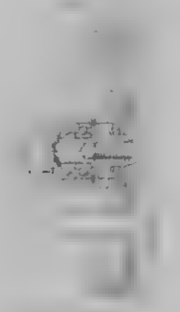
tenz, Switzerland, assignor t
s Genevez, Switzerland
185 00091, § 371 Date Feb. 11, 198
te Feb. 11, 1986, PCT Pub. No. WO86 00001,
ate Jan. 3, 1986
PCT Filed Jun. 3, 1985, Ser. No. 847,175
Claims priority, application Switzerland

Int. Cl.⁴ A01C 1/06

mprising a core and a semiper
wherein said core comprises

outside each said pellet into said core

4,759,152
ECCENTRIC GRINDER WITH A DEVICE FOR
CHANGING A GRINDING MOTION
Gunther Berger, Notzingen; Dieter Dörr, Filderstadt
Schaal, Stuttgart, and Fred Weinmann, Filderstadt
Rep. of Germany, assignors to Robert Bosch Gml
gart, Fed. Rep. of Germany
Filed Jan. 6, 1987, Ser. No. 817
Claims priority, application Fed. Rep. of Germa
1986, 3609441
Int. Cl.⁴ B24B 23/03; F16



t, a grinding disc; a pu
ft for driving said disc
e for driving said disc in
ng at least friction and toothe
sing and at least friction and t
llable on said crowns po
e of said crowns (20) pos
l with said drive shaft
said crow
l on said grinding
and rotata
n said drive sl

lisc supporting a further at least friction an
wn (18), wherein said ring-shaped member (19) is
nto said recess in one position in which said one cro
aid ring-shaped member is engageable with said

4,759,153
APPARATUS FOR SE
RRATED CUTTING ED
Otis St., West Babylon,
Filed Jul. 14, 1986, Ser. No. 88
Int. Cl.⁴ B24B 15/08
—211 R

harpening a cu
m, said apparat

4,759,154
BLOCKING MACHINE FOR LENS MANUFACTURE
Albert H. Morland, and John T. Phoenix, both of Southampt
England, assignors to CooperVision, Inc., Menlo Park, Ca
Division of Ser. No. 816,120, Dec. 18, 1985, Pat. No. 4,677,
This application Apr. 20, 1987, Ser. No. 43,475
Claims priority, application United Kingdom, Apr
8430341
Int. Cl.⁴ B24B 47
U.S. Cl. 51—215 AR
1. A blocking machine for centr

ble table for supportin

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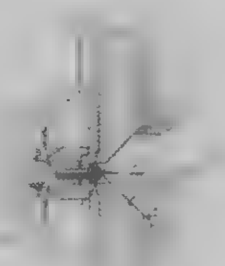
4,759,156

BLAST MEDIA TRANSPORT AND THROWING WHEEL

Jurgen Baumgart, Huntington Beach, Calif., assignor to ACD, Inc., Santa Ana, Calif.

Filed Aug. 19, 1986, Ser. No. 897,848
Int. Cl.⁴ B24C 5/06

-432 5 Claims



and throwing wheel apparatus for nst molded articles to remove resid erefrom which comprises

ng wheel arranged to rotate about an axis and in ng a pair of circular plates with a plurality of radially extending vanes secured between the plates, one of the plates and the innermost edges of the vanes defining an axial opening for receiving media to be propelled, the axia ig being generally conical in shape;

surrounding the throwing wheel, the shroud h exit opening at one end through which the media d against the molded articles, and an entrance ng coaxially alligned with the opening in said one plate of the throwing wheel, the exit opening being po tioned below the throwing wheel,

a feed cage mounted on the shroud and extending throu the entrance opening therein and into the axial opening in the throwing wheel, the feed cage having passageway therethrough above the rotational axis for directing the media into the throwing wheel,

a hopper for holding a static quantity of the media,

media conduit means connected between the hopper and the feed cage for conducting media from the hopper to the passageway in the feed cage, the media conduit means being arranged to provide a barrier to gas flow when filled with media to thereby substantially prevent ambient gas or air from entering the feed cage from the media conduit means during rotation of the throwing wheel, and

rotating seal means disposed between said one plate of the throwing wheel and one of the feed cage and shroud members to prevent air outside of the feed cage from entering said axial opening during rotation of the throw-

---

4,759,157

ROOF EDGE CONSTRUCTION

Russell Webb, Woodfin, and John B. Hickman, Biltmore Fore both of N.C., assignors to W. P. Hickman Company, Asheville, N.C.

Continuation-in-part of Ser. No. 733,641, May 13, 1985, Pat. No. 4,641,476. This application Feb. 6, 1987, Ser. No. 11,921

The portion of the term of this patent subsequent to Fe 2004, has been disclaimed.

1. An assembly for forming a raised roof edge on a building structure having a generally horizontal roof and a generally vertical outer face, said assembly comprising:

a dam member having a generally vertical dam portion with an inwardly directed face for confronting the outer face of the building structure, said generally vertical dam portion further having an upper dam portion and a lower dam edge portion, said dam member including a sloping dam portion extending generally downwardly and inwardly generally from said upper dam portion, and attachment means for attaching said generally vertical dam portion to the outer face of the building structure with said upper dam portion protruding upwardly above the roof of the building structure;

a fascia member installable on said dam member and having a generally concave upper portion for receiving said upper dam portion therein and a lower channel portion for receiving said lower dam edge portion therein when said fascia member is installed on said dam member, said fascia mber also having an inner portion extending generally id concave upper portion, and

member for interposition between said fascia member and said dam member when said fascia member is installed thereon, said clip member having a lower clip edge portion interlockingly engaging said inner portion of said member when said fascia member is installed on said member with said clip member interposed therebe-

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4,759,158

SET OF PREFABRICATED CONSTRUCTION ELEMENT

André Aubry, 9, rue du plan, 2000 Neuchâtel, Switzerland

Continuation of Ser. No. 726,343, Apr. 23, 1985, abandoned. This application Aug. 29, 1986, Ser. No. 902,118

Claims priority, application European Pat. Off., Apr. 2 1984, 84810193.7

Int. Cl.⁴ E04H 1/00

U.S. Cl. 52—79.2 12 Claims

1. A set of prefabricated construction elements, said consisting essentially of

at least one room element having a rectangular b and four room walls respectively extending sub transversely from sides of said rectangular bottom floor to form a first and second pair of parallel, opposed room

arallel, opposed sides, a first pair of parallel roof wa nding substantially transversely from one of said pa pposed sides and a second pair of parallel roof wal iding at an oblique angle from the other of said pairs

of opposed sides to form two pairs of parallel, oppos roof walls, said first pair of roof walls being spaced sai distance w apart, and said second pair of roof walls being spaced said distance 1 apart, the roof walls of one pair being substantially transverse and joined to the roof walls

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4,759,159

BUILDING PANEL JOINT

Wade H. Blazley, Eumundi, Australia, assignor to Blazley D signs Pty. Ltd., Miami, Australia

PCT No. PCT/AU85/00144, § 371 Date Feb. 28, 1986, § 102 Date Feb. 28, 1986, PCT Pub. No. WO86 00363, PCT Pu Date Jan. 16, 1986

Continuation of Ser. No. 845,139, Feb. 28, 1986, abandoned. This PCT application Jun. 28, 1985, Ser. No. 83,909

Claims priority, application Australia, Jun. 28, 1984, Mar. 4, 1985, PG9556

Int. Cl.⁴ E04B 1/32

1. A building panel having m tion and a pair of side engageme opposite sides of said main body side portion including support flange means ardly from said main body portion, the flange mea said side portion terminating in a female rib and th means of the other said side portion terminating in a adapted for interlocking engagement with a said fem a further said panel whereby adjacent said panels interlocked in use, said female rib extending wholly to of its supporting flange means and away from said ma portion and said male rib extending from its supportin means in the same direction as said female rib whe permit adjacent said panels to be overlapped at the adjac said side portions and be moved in the general direction of s side portions to enable said male rib of one said panel to eng and interlock with said female rib of the ad said female rib being of generally inverted transverse cross-section and having a first leg con ion of said supporting flange means of said fema g, said second l

said male rib being of gene transverse cross-section and extension of said supp a second leg spaced away from said first leg directed projection defining a recess tion between said first leg and said su said male rib, said recess being com deformation, the ar locked said male rib legs of said male and of s female

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PREFAI
MONOLITH
Peter A. Fis

monolithic con ed on and span

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m J. Kucyk, Jr., 1366 Key Wes
D. Whitefield, P.O. Box 351
Filed Aug. 20, 1986, Ser

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rtion being spaced from said

final axis, the support post
rigid member having an upper
s secured and a lower end, said

nding from the lower end of the

through the holes
a fastener extending

RM ASSEMBLY

each of th
receiving n
ners, said deck sections includ
ming peripheral portions of the
ns forming inner portions of th

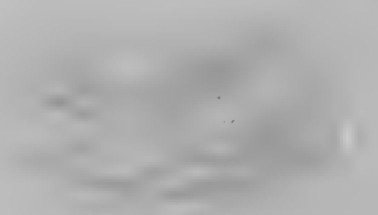
leg
of
connected with one of the connecting tube
able foot for each of said supporting legs, st
diagonal tubular rails each having connecting means at one en
g a connection with one of said connecting tubes and
rting legs of said peripheral deck sections, the other
ends of said rails having adjusting tubes adjustably connected
therewith, for supporting the corr
n the ground, a plurality of steps, step plates affixed to ends of

of for connecting said p
d guard rails affixed to

4,759,163
ROOF DRAIN AS
Robert W. Mason, 1476 Mississau
tario, Canada L4H 2J8), and Ha
l Seneca, N.Y. 14224
Filed Jul. 14, 1986, Se

ing in the re
n of the drain

FLOORING SYSTEM
W. Abendroth, 107 Elm Grove La., and Gary Stephens
10 Crystal Ave., both of Crystal Falls, Mich. 49920
Continuation-in-part of Ser. No. 855,958, Apr. 25, 1986,
abandoned, which is a continuation-in-part of Ser. No. 608,3
May 9, 1984, Pat. No. 4,589,243, which is a continuation-in-pa
of Ser. No. 387,184, Jun. 10, 1982, Pat. No. 4,449,342. Thi
application May 20, 1987, Ser. No. 24,58
Int. Cl.⁴ E04B 1/6



ing a channel, an elongate laminated member within said chan
nel and secured to said layer of rigid material, a floorboard
overlying said layer of rigid material and said laminated mem

SOGLING PANEL ASSEMBLY AND METHOD OF MAKING SAME
chard C. Getoor, Madeira, and Michael D. Pottinger, Ander
on Township, Hamilton County, both of Ohio, assignors
American Building Components Company, Cincinnati, Ohi
Filed May 30, 1986, Ser. No. 869,194

outwardly extending plate portion e
the opposite edges, a bridge plate p
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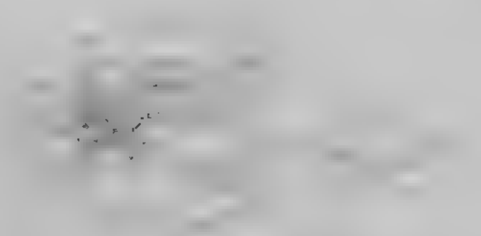
4,759,168

OWER-FEED BREAI

and Rapids, and Gary L. Kruse, Spring

ssignors to Oliver Products Company,



APPARATUS FOR PACKING CONIFEROUS TREES, THIS HAVING A MECHANICAL GRIPPER

Hermann Schneiders, Apostelstrasse 40, D-4100 Duisburg 1, Fed. Rep. of Germany

PCT No. PCT/DE86/00340, § 371 Date May 15, 1987, § 102(e) Date May 15, 1987, PCT Pub. No. WO87/01357, PCT Pub. Date Mar. 12, 1987

PCT Filed Aug. 26, 1986, Ser. No. 44,510

Claims priority, application Fed. Rep. of Germ

985, 3531013

packaging

comprising

ed upper frame portio

rdly extending supp

d on said first support frame portion

e branches of a tree or plant pulled

is said second support fr

defining an axis which

nd apparatus,

ciated with said funnel for applying a

wrapping to a tree or plant pulled through said fun

a gripper mechanism

gripper mechanism

a retainer plate whi

d which is mounted at one end on said reta

sing said tubular sleeve towards said

cking said tubular slee

ING AND PACKAGING METHOD A APPARATUS THEREFOR

aji Sawa, and Shoji Ohnishi, both of Tokyo, Japan

to Kureha Chemical Industry Co., Ltd., Tokyo, Jap

Filed Apr. 8, 1987, Ser. No. 35,989

laims priority, application Japan, Apr. 18, 19

ar body

feeding the tubular bo

having a pair of rotating

cutting throug

Fendt b. Nbg., and Bernhard

ed. Rep. of Germany,

eucht, Fed. Rep. of Germany

Filed Dec. 9, 19

aims priority, applicati

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rotary means,
it one end port

iat rotation of said dr
t of said rotary means

strup, Harsewinkel; Karl Rupprecht, Hilter, and
s, Harsewinkel, all of Fed. Rep. of Germany, assign-
as Ohg, Harsewinkel, Fed. Rep. of Germany
1986, Ser. No. 877,430
in Fed. Rep. of German

suko Inoue, Ibaragi, Japan, assignor to
Kabushiki Kaisha, Kyoto, Japan
Filed Nov. 6, 1986, Ser. No. 928,300
application Japan, Nov. 11, 1985
D01H *13/30*, *7/86*, B05C *1/08*

ster, for applyi

is dra

said lubricant is transferred by said
from said tank to said wetting means

FRICTION SP
osef-Neidhart-Strasse 18, 7347 Bad
kingen, Fed. Rep. of Germany, assignor to Fritz Stahlec
and Hans Stahlecker, both of, Fed. Rep. of Germany
Filed Sep. 9, 1986, Ser. No. 905,171

rollers
ans for withdrawin

ans for generating an air curre
haped gap, the suction means in

Escondido La., Sebastop

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OD FOR GENERATING ELECTRONICALLY EXCITED NF FOR USE IN A LASER

avid J. Benard, and Robert H. Cohn, both of Thousand Oaks, Calif., assignors to Rockwell International Corporation, [illegible], Calif.

HEAT EXCHANGING EXHAUST MANIFOLD

Armand Rognon, Verneuil sous Coucy, 02380 Coucy le Chateau Auffrique (Aisne), France
Filed Dec. 15, 1986, Ser. No. 941,419
Claims priority, application France, Dec. 16, 1985, 85 18587
Int. Cl.⁴ F01N 3/02

[illegible] hanging exhaust [illegible] tines, comprising an exhaust gas discharge means, [illegible] for gathering the exhaust gases of the engine together [illegible] ding them towards said discharge means, means for [illegible] said gases, said cooling mea [illegible] inside said manifold means, an [illegible]

MANIF [illegible]
TRA [illegible]

1. An exhaust transfer and cooling apparatus comprising, a [illegible] manifold with connected cooling jacket, and means for [illegible] g said apparatus to an engine block said exhaust [illegible] d having a channel wall forming a main exhaust channel connecting a plurality of engine exhaust transfer channels to a manifold exhaust gas port, and said cooling jacket having (a) integrally connected top, bottom, front, rear and side walls forming an interior space which is divided into a front cavity and rear cavity by a partition, said partition having an opening for communicating heat exchange means between said front [illegible] vity and said rear cavity, (b) a first access means for fluidic [illegible] mmunication between said front cavity and said jacket exte [illegible]) a second access means for fluidic communication [illegible] said rear cavity and said jacket e [illegible] ng a heat exchanger apparatus within said jacket and [illegible] duct means for fluidic communication between said jacket enclosed heat exchanger [illegible]

4,759,182

STEERING CONTROL UNIT WITH FLOW AMPLIFICATION

Donald M. Haarstad, Chaska, Minn., assignor to [illegible] ration, Cleveland, Ohio
Filed Jul. 24 [illegible]
Int. Cl.⁴ [illegible]
U.S. Cl. 60 [illegible]

[illegible] defining [illegible] ized flu [illegible] and sec [illegible]

[illegible] orifice, and at a sec [illegible] axial [illegible] aid actuated means and said firs [illegible]

4,759,183

CONTROL ARRANGEMENT FOR AT LEAST [illegible] YDRAULIC LOADS FED BY AT LEAST ONE [illegible]

[illegible] rbert Kreth; Heinz Torkler, both of Lohr/Main, an [illegible] Hufnagel, Pflochsbach, all of Fed. Rep. of Germany, assignors to Mannesmann Rexroth GmbH, Fed. Rep. of Germany
Filed Dec. 19, 1986, Ser. No. 944,432
Claims priority, application Fed. Rep. of Germany [illegible] 85, 35 [illegible]

[illegible] and speed-controlling direc [illegible] pump and each of said load [illegible] voltage settable at an associat [illegible] tional valves and a pressure balance between said pump and said valves for setting a load-independent flow in response to a pressure difference obtaining between the input and the output of the asso [illegible] reduction [illegible]

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rd, Ill., assignor to Sundst

1985, Ser. No. 813,495

D FOR INTRODUCTION OF CHARG TO THE CYLINDER OF AN INTERNA BUSTION ENGINE AND AN ENGINE UNDERTAKING THE METHOD

Germany

of Ser. No. 700,768, filed as PCT DE84/00111
84, published as WO84/04564 on Nov. 22, 19
abandoned. Filed Jan. 22, 1987
Claims priority, application Fed. Rep. of Germany
1983, 3319161; May 18, 1983, 3318094; May 18, 19

ans for charging an amount of a

operatively associated with said

reached lower dead

4,759,189
THERMAL FLUID D
ACTUATOR
rge P. Stropkay, Gates Mills, and Joseph A. Birli, Sr., R
mond Heights, both of Ohio, assignors to Design & Manufa
uring Corporation, Willoughby, Ohio
Continuation-in-part of Ser. No. 803,636, Dec. 2
andoned. This application May 19, 1987, Ser. N
Int. Cl.⁴ F03G 7/06

electro-thermal actuat

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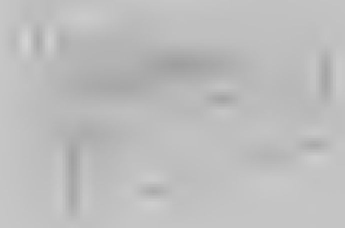
g, Inc., Los Angeles, Calif
, 1987, Ser. No. 70,923

HORIZONTAL REFRIGERATOR



r constituting a substr

DOMESTIC APPLIANCE COMPRISING A TOOL

e, Bertram, Stolberg, Fed. Rep. of Germany; Hugo Schein
mann, Schaesberg, Netherlands, and Romuald L. Bukoschek
Klagenfurt, Austria, assignor
York, N.Y.

strut means laterally extending a

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...d Dietmar S... Rosrath, ..., assignors to Ymos Aktiengesellsch...

...THOD

...Takao Kawasugi... both of Kitakyushu, and Akihiro Tanaka, Hachioji, all Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha; Nippon Steel Corporation and Kabushiki Kaisha ...sha, all of, Japa...

CURVED PIP...

...nagawa, Japan, assignor to Kabus...

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ied Sep. 11, 1986, Ser. No. 906,

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Japan, assign

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Florida, Gain

ichi Nagano, Izumi, Japan, assignor to Shimano
ompany Limited, Osaka, Japan
Filed Apr. 23, 1987, Ser. No. 41,45[illegible]
riority, application Jap.
No. 61-302199

actuate said brake mean
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ssignors to Nissan Motor Co., Ltd., Jap

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d hub bracket being formed from a on
nd said base portion of said hub brac
ctangular and planar, said upstandin

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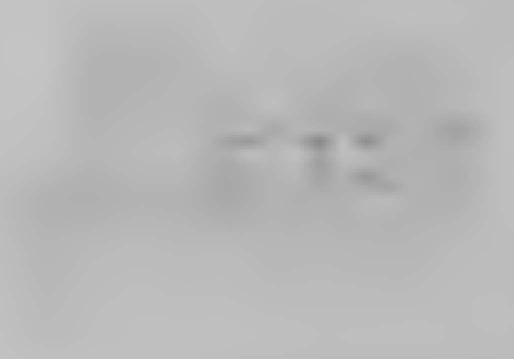

[illegible]

nutsu, Kasugai; Hiroshi Sugita, Ichinomiya;

Inazawa, and Zenzaburo Murase, Konan, all

signors to Toyoda Gosei Co., Ltd., Nishikasu

1983, abandon

o. 882,015

135415

[illegible]

Japan, assignors

[illegible]

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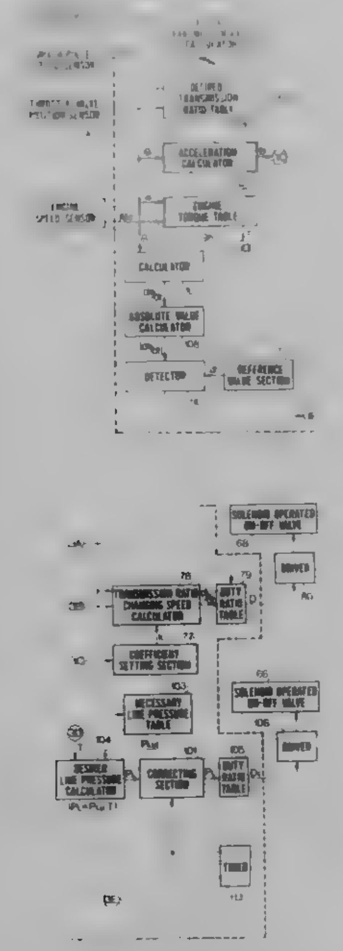
rapid acceleration exceeding a predetermined magnitude and for producing a third signal,


ACCELERATION CALCULATOR
ENGINE TORQUE TABLE
CALCULATOR
ABSOLUTE VALUE CALCULATOR
DETECTOR
REFERENCE VALUE SECTION
SOLENOID OPERATED ON-OFF VALVE
DRIVER
TRANSMISSION RATIO CHANGING SPEED CALCULATOR
DUTY RATIO TABLE
COEFFICIENT SETTING SECTION
NECESSARY LINE PRESSURE TABLE
SOLENOID OPERATED ON-OFF VALVE
DRIVER
DESIRED LINE PRESSURE CALCULATOR
CORRECTING SECTION
DUTY RATIO TABLE
TIMER

fourth means responsive to the third signal for controlling said control valve means to increase the line pressure for a predetermined time so as to prevent slipping of the belt at the rapid acceleration.

4,759,237

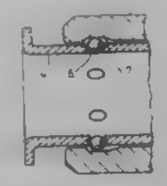
SELF-LOCKING NUT AND TIGHTENING TOOL

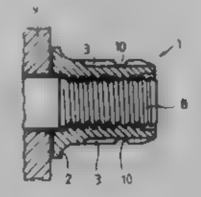
Christian R. Fauchet, 5, rue des Fonds de Caves, 95240 Cormeilles en Parisis, and Reynald Rousselle, 31, rue Benoit Frachon, 78280 Guyancourt, both of France
Filed Dec. 18, 1986, Ser. No. 943,926
Int. Cl.⁴ B25B ***13/50***
U.S. Cl. 81—53.2 **7 Claims**

4. In combination, a self-locking nut and a tightening tool for fastening said self-locking nut to a screw:

said self-locking nut comprising an internally threaded bore and a plurality of longitudinal channels of a predetermined cross-section and located on the outer surface of said self-locking nut; and

said tightening tool comprising (a) a barrel having a side wall, (b) a plurality of drive balls positioned in said side wall, wherein said plurality of drive balls are positioned to engage in corresponding ones of said longitudinal channels; and (c) a sleeve surrounding an exterior section of said barrel and adapted to move axially relative to said barrel from a first rest position to a second position in response to a predetermined axial force exerted on said sleeve relative to said barrel, said sleeve having a groove in its inner wall for receiving said plurality of drive balls when said tool is positioned on said nut and said sleeve is in said first position such that said sleeve (a) causes said drive balls to extend radially inward when said sleeve is moved to said second position causing said self-locking nut to undergo plastic deformation and (b) creates a circular groove in the outer surface of said nut and a local circular radial deformation of said internally threaded bore as said tightening tool is rotated relative to said self-locking nut.

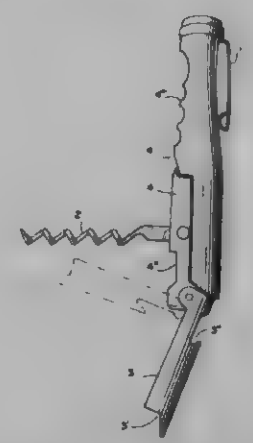




4,759,238

POCKET CORKSCREW

Germano Farfalli, Maniago, Italy, assignor to Marino Farfalli & Figli s.n.c., Maniago, Italy
Filed Apr. 3, 1987, Ser. No. 33,764
Claims priority, application Italy, Nov. 17, 1986, 45751 A/86
Int. Cl.⁴ B67B ***7/44***
U.S. Cl. 81—3.09 **3 Claims**



1. Pocket corkscrew, of the type having folding tools (2,3) in a handle (4), said tools comprising a screw-type means for insertion into a cork (2) and a fulcrum lever extension means such as the counter lever (3) including means for removing crown caps both said tools being hinged to one end of the handle at a convenient distance from each other, characterized in that

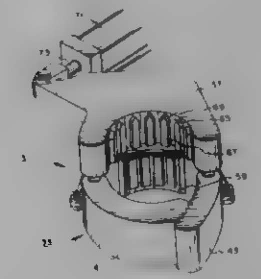
said handle (4) is of plastic material, and

said fulcrum lever extension means such as counter lever (3) is of semitubular form having a slot seat (3″) cut through its back with an undercut to receive a crown cap and said handle (4) is equipped with a complementary hollow for said slot seat so as to render the latter actively usable for removing crown caps both when the counterlever is closed and when it is completely open in alignment, or nearly so, with the handle (4)

4,759,239

WRENCH ASSEMBLY FOR A TOP DRIVE SUB

William R. Hamilton, Georgetown, and Karl A. Schulz, Round Rock, both of Tex., assignors to Hughes Tool Company, Houston, Tex.
Continuation of Ser. No. 828,072, Jan. 30, 1986, abandoned, which is a continuation of Ser. No. 626,186, Jun. 29, 1984, abandoned. This application Mar. 3, 1987, Ser. No. 22,619
Int. Cl.⁴ B25B ***13/50***
U.S. Cl. 81—57.34 **1 Claim**



1. A wrench assembly for making and breaking the threaded connection between a tubular member and a top drive sub having a plurality of axially oriented splines located on the exterior thereof, the tubular member being suspended vertically in a well drilling rig from the top drive sub, the wrench assembly comprising:

a frame, the frame being located at an elevated location above the rig floor;

a one piece, curved gate arm mounted on the frame, the gate arm having an interior surface for contacting one of the tubular members and an exterior surface, the gate arm having one end pivotally secured to the frame and having an opposite end, the opposite end having a plurality of latching teeth on the exterior surface thereof;

a one piece, curved latch arm mounted on the frame, the latch arm having an interior surface and an exterior surface, the latch arm having an end pivotally secured to the frame at a position opposite the gate arm to thereby define a pipe engaging opening within the frame, the latch arm having a plurality of latching teeth along the interior surface for engagement with the latching teeth on the gate [illegible]

a die block mounted on the frame within the pipe engaging opening, the die block being reciprocally movable between a retracted position away from the tubular members and an extended position against the tubular members;

a fluid cylinder having a cylinder rod attached to the pivoting end of the gate arm for pivoting the gate arm between an open position and a closed position;

a second fluid cylinder having a cylinder rod attached to the pivoting end of the latch arm for pivoting the latch arm between an open position and a closed position; and

a second wrench mounted on the frame above the gate arm and latch arm, the second wrench comprising a semi-circular member having an interior surface provided wit plurality of axially oriented splines for engaging splines on the exterior of the top drive sub

4,759,240

ELECTRIC SCRFWDRIVER WITH ADJUSTABLE JOINT

Samson Lin, 7Fl., No. 420, Sec. 1, Keelung Road, Taipei, Taiwan
Filed Apr. 28, 1987, Ser. No. 43,333
Int. Cl.⁴ B25G ***1/06***
U.S. Cl. 81—177.8 **1 Claim**

1. An electromotive screwdriver comprising:

(a) a head assembly having a first inclined plane integrally formed on a bottom end of a housing of the head assembly, said first inclined plane being provided with:

a hollow ball having an opening on a central portion thereof;

a semi-circular channel peripherally disposed on said first inclined plain and encompassing half of said hollow ball;

a ridge-like runner protruding from said first inclined plane at a side of said plane opposite to said channel;

a first rectangular recess formed in said plane positioned adjacent to said ridge-like runner; and

a second rectangular recess positioned adjacent to said channel at a position opposite to said first rectangular recess;

(b) a barrel having a second inclined plane integrally formed with a housing of the barrel, said second inclined plane being provided with:

a spherical recess having an opening at a central bottom portion thereof;

a serrated channel having a plurality of toothed-members thereon, said serrated channel being peripherally disposed on said second inclined plane and encompassing half of said spherical recess;

a box shaped runner protruding from said second inclined plane at a side of said second plane opposite to said serrated channel; and

a rectangular opening positioned adjacent to said serrated channel;

(c) a fixing assembly disposed within the barrel comprising:

a push rod protuding through an exterior opening of the housing of said barrel;

a lug body having a rectangular head portion extending therefrom which is connected to a lower face of said push rod and which is retained inside said barrel; and

a spring member positioned inside the barrel and at a position behind said lug body; and

(d) said head assembly being engageable to said barrel by adapting the hollow ball of said assembly into the spherical recess of said barrel, the ridge-like runner of said head assembly being slidable along the serrated channel of said

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barrel, the box-shaped runner of said barrel being slidable along the semi-circular channel of the said head assembly, and the lug body of said fixing means being catchable by the first and the second rectangular recesses of the head assembly through a rectangular opening on said barrel.

4,759,241
SCREW DRIVER

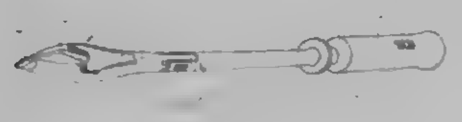
Egon Vorwinkel, Ulrichstrasse 3a, 8901 Stettenhofen, Fed. Rep. of Germany

Filed Dec. 16, 1986, Ser. No. 942,117

Claims priority, application Fed. Rep. of Germany, Jan. 16, [redacted]

Int. Cl.⁴ B25B *23/10*

U.S. Cl. 81—453 **19 Claims**



1. A screw driver, comprising:
an elongated shank having a turning tool located at one end and a handle connected at its other end, said shank having butting faces defined at the turning tool end thereof;
a radial locking gear located at the turning tool end of the [redacted]
a shifter collar mounted on the shank at the turning tool end thereof for axial movement along the shank, said shifter collar including at least two spring arms serving as holding jaws, said spring arms being spreadable in the radial direction of the shank against their inherent elasticity by selected butting faces of the shank, and fixed relative to each other by means of said radial locking gear, said radial locking gear being mounted on the shifter collar and cooperating with other butting faces of the shank to release the spring arms;
a control element mounted on the shank at the handle end thereof and extending toward and engaging the shifter collar, said control element being mounted for axial movement along the shank and for imparting to the shifter collar its axial movement, said control element having butting faces at the turning tool end thereof; and
an axial locking gear mounted to the shifter collar and the control element which fixes the shifter collar to the shank and connects the shifter collar to the control element, said axial locking gear cooperating with the butting faces of the control element for releasing the shifter collar from its fixed engagement with the shank.

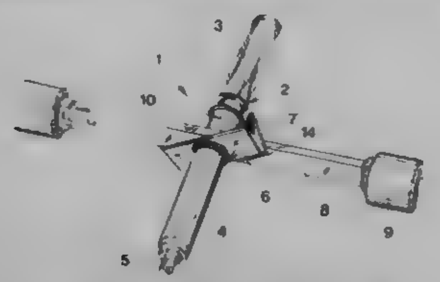
[redacted]

Sten-Ake Andersson, Växjövägen 4,, 360 24 Linneryd, Sweden

Filed Mar. 2, 1987, Ser. No. 20,589

Int. Cl.⁴ B25B *23/143*

U.S. Cl. 81—466 **2 Claims**



1. In an impact wrench, particularly for wheel nuts and wheel bolts, which comprises a shaft with a handle on one end thereof and a socket on the opposite end, the shaft between its ends being provided with a hub;
an impact arm being rotatably supported about said hub, which carries weights and is arranged to transfer impact moment to the shaft via stop members arranged at the hub, the improvement comprising:
the hub having a transverse arm with radial portions projecting in diametrically opposed directions, said transverse arm being at its ends provided with stop means including a pair of stop members, said stop members being directed from said transverse arm toward one end of said shaft, each one of said stop members at one side thereof having a first surface substantially parallel to said shaft, whereas the opposite second surface thereof is inclined obliquely toward said one end of said shaft, for tending to lift the impact arm upon impact against the inclined surface toward said one end of said shaft from engagement with the transverse arm,
and further comprising moment limiting means on said shaft adjacent said impact arm, which resists said lifting of said impact arm, for limiting the ability of the impact arm of transferring moment to the shaft carrying the socket in the direction of movement of said impact arm toward said second surface.

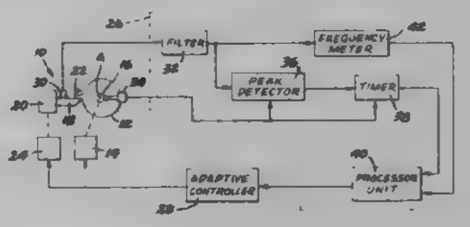
4,759,243
METHOD AND APPARATUS FOR OPTIMIZING SINGLE [redacted]

Robert A. Thompson, New York, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 19, 1986, Ser. No. 944,484

Int. Cl.⁴ B23B *3/00*

U.S. Cl. 82—1 C **9 Claims**



1. A method of optimizing a single point machining operation wherein a cutting tool engages a workpiece which is rotated about an axis thereof and the tool and workpiece are moved relative to one another to machine the workpiece, the method comprising sensing vibrations produced by said machining operation; converting the vibrations to a corresponding electrical signal; measuring, over successive revolutions of the workpiece, a change in angle relative to the workpiece at which said electrical signal reaches a predetermined magnitude; and controlling the relative movement between the workpiece and the tool so as to maintain said change in angle outside of a predetermined range of values; wherein said measuring comprises measuring a time interval between the workpiece reaching a predetermined angular position and the time of occurrence of said predetermined magnitude; determining a time difference between the time intervals measured on the successive revolutions of the workpiece; measuring a frequency of said electrical signal; and determining said change in angle using said measured frequency and said time difference.

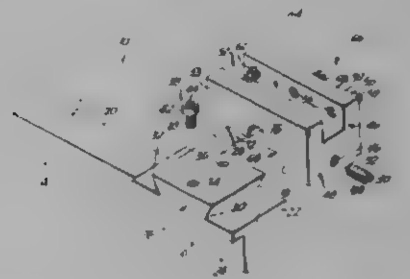
4,759,244
ADJUSTABLE QUICK CHANGE TOOL HOLDER

Eddy Z. Engibarov, 616 Onderdonk Ave., Ridgewood, N.Y. 11385

Filed Dec. 27, 1982, Ser. No. 452,892

Int. Cl.⁴ B23B *3/36*

U.S. Cl. 82—34 B **4 Claims**



1. An adjustable quick change tool holder, comprising: an elongated arbor for insertion into an machining apparatus;
a summetrical tool support member having a U-shaped channel formed longitudinally therein for replaceably supporting a cutting tool projecting from either end thereof and axially adjustable with respect to the longitudinal axis of the arbor;
a plurality of clamping screws extending from only one side of said tool support member into said channel for clamping the cutting tool within the channel;
guide means for transversely adjusting said tool support member with respect to said arbor, said guide means comprising a transverse guide portion projecting from said arbor and a mating way portion received into said tool support member, said way portion extending transversely across the tool support member and being open at both ends thereof, an abuttment projecting from said guide portion at an offset location thereof, a transverse channel open across said way portion to accommodate passage of said abuttment therethrough, said channel being open at only one side of the tool support member and ending in an abuttment wall, an adjusting screw extending from an opposing side of said tool support member and projecting into said channel from said abuttment wall for controlling said transverse adjustment of said tool support member with respect to said arbor;
said abuttment being selectively installed to permit said transverse adjustment from only one of the right or the left side of the arbor;
stop means for preventing transverse adjustment of said support member from a side opposed to the side corresponding to the selected installation of the directional means, said stop means comprising a pair of apertures symmetrically located at respective opposing sides of said guide portion and adjacent edges thereof, there being only a single abuttment and said abuttment being selectively insertable in only one of said apertures at a time, and said tool support member being reversible from front to back with respect to said arbor by positioning the abuttment in either one of the apertures, said abuttment wall engaging said abuttment to prevent sliding of said support means on said arbor from a side contrary to the selection determined by the insertion of the abuttment in a selected aperture, whereby by front to back reversal of said tool support member, both clamping of the cutting tool and transverse adjustment of the tool support member are achieved from the same selected right or left side; and
means for releasably securing said tool support member at a desired transverse position.

4,759,245
MACHINING TOOL ASSEMBLY

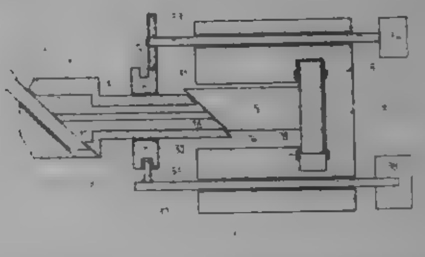
Rudolf Schneider, Reinach, Switzerland, assignor to Erowa AG, Reinach, Switzerland

Filed May 6, 1985, Ser. No. 730,806

Claims priority, application Fed. Rep. of Germany, May 11, 1984, 3417450

Int. Cl.⁴ B23B *3/26, 29/03*

U.S. Cl. 82—1.4 **12 Claims**



1. A tool assembly for rotatively machining an at least partially closed inner surface of a workpiece, particularly of a bore, said tool assembly comprising:
tool support means including a rod member having an opening extending axially thereof and a tool supporting member supported by said rod member, said tool supporting member being radially adjustable relative to said rod member;
adjusting means comprising a movable control member for adjusting the radial position of said tool supporting member;
said rod member comprising first and second opposite guiding surface means extending parallel to each other and at an angle to the longitudinal axis of said rod member, said tool supporting member and said control member being slidable along said first and second guiding surface means, respectively; and
a coupling member for fixedly connecting said tool supporting member and said control member to provide a predetermined distance therebetween and joint movement thereof and forming a structural unit which is slidable as a whole relative to said rod member along said first and second guiding surface means, said coupling member extending through said axially extending opening of said rod member.

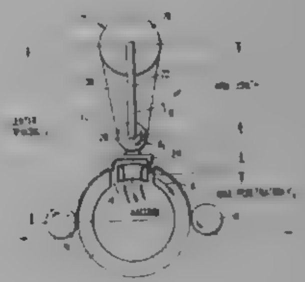
[redacted]
TUMBLING HOLE PUNCH AND METHOD FOR PUNCHING HOLES INTO A MOVING WEB MATERIAL

Fox J. Herrington, Holcomb, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 871,334, Jun. 6, 1986, Pat. No. 4,693,152. This application Apr. 2, 1987, Ser. No. 33,306

Int. Cl.⁴ B26F *1/08*

U.S. Cl. 83—37 **3 Claims**



1. A method for punching holes in a fast-moving web of film at predetermined repeat lengths comprising advancing a film web over a rotatable backup roll with the film web extending

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in surface contact with at least a portion of the circumference of the roll and at least one punch receiving annular hole of predetermined size extending through the circumferential surface of the anvil roll so as to communicate with the interior of the roll, positioning a punch having a plurality of teeth for punching through the film into a hole into the backup roll, the punch being mounted in a holder to a rotatable arm which is geared to the backup roll so that the punch remains in register with the hole in the roll, and keeping the axis of the punch aligned with the axis of the hole in the roll by pivoting of the punch relative to its arm and controlling the pivoting of the punch so that as the arm rotates the punch tumbles in the opposite direction, keeping its axis parallel with the hole axis; wherein the path of movement of the punch teeth relative to the annular hole in the anvil roll is determined by the following parameters:

C=arm length from its axis to the pivot about which the punch tumbles,
P_o=maximum penetration of the punch into the annular hole in the anvil roll,
V=repeat multiple, which is the number of rotations of the anvil roll for each repeat.
S=center spacing between the anvil roll and the punch, and
Z=repeat length; and

wherein said annular hole comprises an annular slot having a gap equal to the thickness of the punch teeth plus mechanical clearance and the path error E, where the arm length C and the path error E are calculated by the following equations:

$$C - \frac{SV}{V+1} + \left[60 - 11\frac{V+1}{V}\right]P_0$$

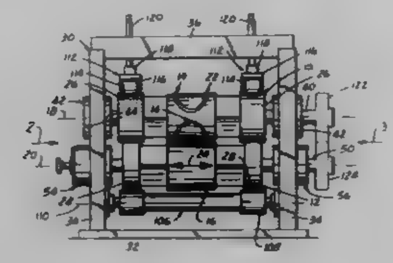
$$E = \frac{372\,P_0^{1.46}\,(V+1.9)^{.55}}{S^{.48}}$$

whereby change over of the apparatus for all repeat lengths requires only replacement of the anvil roll and the punch holder independent of the repeat length.

4,759,247
ROTARY DIES WITH ADJUSTABLE CUTTER FORCE

Jerry L. Bell, Rochester Hills, Mich., and William C. Bollinger, Bradenton, Fla., assignors to Bernal Rotary Systems, Inc., Troy, Mich.

Filed Oct. 22, 1987, Ser. No. 112,228
Int. Cl.⁴ B26D *1/62*
U.S. Cl. 83—346 9 Claims

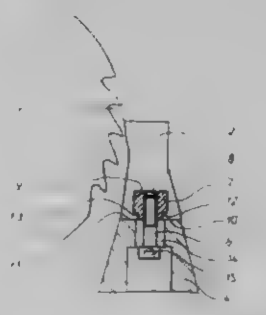


1. Cylindrical dies which when rotating cut along a predetermined line of severance in a web of material which comprises: a pair of coacting die cylinders of metal constructed and arranged to be journaled for rotation, one of said cylinders having an anvil surface thereon which is essentially a frustum of a right circular cone with its axis essentially coincident with the axis of rotation of said one cylinder, at least one cutting blade on said other cylinder and having a sharp edge with its apex essentially throughout its length lying in a blade surface which is essentially a frustum of a right circular cone with its axis coincident with the axis of rotation of said other cylinder, said blade surface and said anvil surface tapering in axially opposite directions and both having essentially the same rate of taper, whereby when the coacting cylinders are in assembly with their axes of rotation essentially parallel and spaced apart a constant distance the clearance between the apex of the cutting blade and the anvil surface can be varied and adjusted by relatively moving the die cylinders axially to vary the minimum clearance between the cutting blade and the anvil surface.

4,759,248
BED KNIFE FOR GRANULATING PLASTIC STRANDS

Leo Müller, Bensenbach, and Hermann Bertsch, Mannheim, both of Fed. Rep. of Germany, assignors to Automatik Apparate Maschinenbau GmbH, Ostheim, Fed. Rep. of Germany

Filed Apr. 2, 1987, Ser. No. 34,074
Claims priority, application Fed. Rep. of Germany, Apr. 3, 1986, 3611179
Int. Cl.⁴ B23D *25/02;* B26D *1/56*
U.S. Cl. 83—349 9 Claims



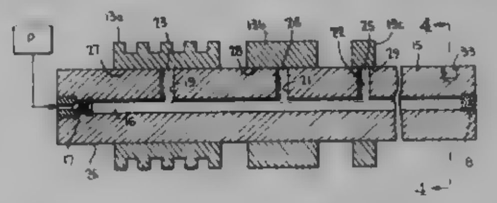
1. A bed knife that acts together with a cutting blade moving past it, particularly for granulating plastic strands, consisting of individual successive sections of the same type that are fastened to a supporting beam and form a continuous knife edge made of a wear-resistant cutter material, characterized by the fact that each section (2,18) consists essentially of ceramic cutter material, extends over the regions of the feed and delivery of the material to be cut and the cut material, and is provided with a cutout (9,19) running in the longitudinal direction of the bed knife (3) that is designed, starting from an outer surface (10) of the sections (2,18), as a throat (13,22) with an enlargement pointing toward the interior of the sections (2,18), with the cutouts (9,19) of all the sections (2,18) being aligned with one another and holding a bar (7,20) extending through several sections (2,18) with the same dimension which can be tightened together with the sections (2,18) against the supporting beam (4) by means of screws (6) supported on the supporting beam (4) passing through the throat (13,22) and penetrating into threaded holes (8,21) in the bar (7,22).

4,759,249
WEB SLITTING APPARATUS HAVING ADJUSTABLE LOWER CUTTING BLADES

Franz Held, Gross-Zimmern, Fed. Rep. of Germany, assignor to Maschinenfabrik Goebel GmbH, Darmstadt, Fed. Rep. of Germany

Filed Sep. 22, 1986, Ser. No. 909,912
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1985, 3533730
Int. Cl.⁴ B26D *7/06*
U.S. Cl. 83—425.4 2 Claims

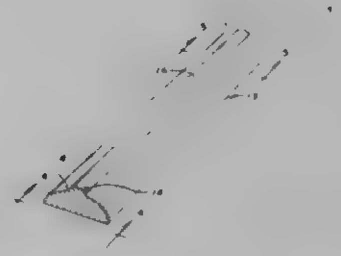
1. In an apparatus for longitudinally slitting a continuous web, at least one lower, circular cutter means mounted on a shaft adapted to be journalled on a machine frame for rotation, said cutter means having a smooth and uninterrupted inner peripheral surface of a predetermined axial extent, said shaft having a smooth and uninterrupted outer peripheral surface, at least one radial bore and a longitudinal passage, said bore communicating with said passage and having an outlet opening into said inner peripheral surface, the size of said outlet being less than said axial extent of said cutter means such that said cutter means may be axially shifted on said shaft without uncovering said outlet, means for supplying air under pressure to said bore through said passage to facilitate axial adjustment latch means for engaging the shaft for setting the shaft in a position in which said outlet of all of said radial bores lie only in an upper circumferential half of said shaft prior to axial adjustment of said cutter means.



4,759,250
MUSICAL INSTRUMENT NECK

Thomas G. Lieber, 242 E. Argyle St., Valley Stream, N.Y. 11580

Filed May 19, 1987, Ser. No. 51,317
Int. Cl.⁴ G10D *3/18*
U.S. Cl. 84—293 3 Claims



1. Improved neck for a stringed musical instrument having U-shaped neck and body and a fingerboard running the length of the instrument neck on the upper surface thereof, comprising:

substantially parallel grooves running the length of the undersurface of the neck, the grooves defining a rounded ridge portion on the neck undersurface, such ridge portion tapering in width and depth below the fingerboard from the body portion to the upper end of the instrument, such that a player's hand moving up and down the undersurface of the neck encounters less drag.

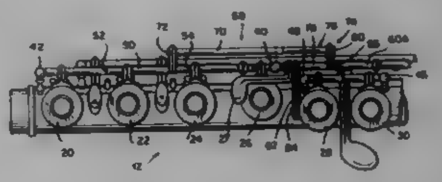
4,759,251
SPLIT-E MECHANISM

Rocco A. Giglio; John Plank; Frank Willard, and Ronald Green, all of Elkhart, Ind., assignors to United Musical Instruments USA, Inc., Elkhart, Ind.

Filed May 27, 1987, Ser. No. 54,535
Int. Cl.⁴ G10D *9/04*
U.S. Cl. 84—384 13 Claims

1. In a flute having a right-hand steel, a left-hand steel, a first hinge rotatably mounted on the right-hand steel, a first key coupled to the first hinge, a second hinge rotatably mounted on the left-hand steel, and a second key, a split-E mechanism for actuating the second key in response to actuation of the first key, the split-E mechanism comprising

actuator means for actuating the second key in response to rotation of the second hinge relative to the left-hand steel; and

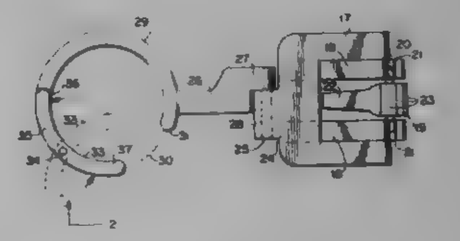


bridge means interconnecting the first and second hinges for rotating the second hinge in response to actuation of the first key to operate the actuator means.

4,759,252
MUTE HOLDER

Peter Occhipinti, Itasca, Ill., assignor to Lyons Music, Inc., Itasca, Ill.

Filed May 1, 1987, Ser. No. 44,824
Int. Cl.⁴ G10D *7/10*
U.S. Cl. 84—387 A 9 Claims



1. A holder for the mute of a musical instrument comprising:
a support
an open arcuate member attached in fixed relation to said support and having a pair of ends defining a gap therebetween; and
a moveable arcuate segment swingably mounted on a pivot at one end of the fixed arcuate member, the arcuate segment having one portion that extends from said pivot into said gap and another portion that extends from said pivot along said fixed arcuate member.

4,759,253
METRONOME

Fritz Härle, Isny; Georg Vochezer, Argenbühl, and Erhard Schmid, Isny, all of Fed. Rep. of Germany, assignors to Rudolf Wittner GmbH u. Co., Fed. Rep. of Germany

Filed Jul. 30, 1987, Ser. No. 79,644
Claims priority, application Fed. Rep. of Germany, Aug. 22, 1986, [illegible]
Int. Cl.⁴ G10B *15/00*
U.S. Cl. 84—484 9 Claims

1. A metronome comprising:
a pendulum which is fixedly mounted on a pendulum shaft for rotation therewith,
a toothed wheel shaft which is driven by a windable spring mechanism,
a toothed wheel which is fixedly arranged on said toothed wheel shaft for rotation therewith and drives said pendulum by means of an anchor which is fixedly mounted on said pendulum shaft for rotation therewith,
a bell which is struck by a bell striker, and
a bell drum which is rotatably mounted on said toothed

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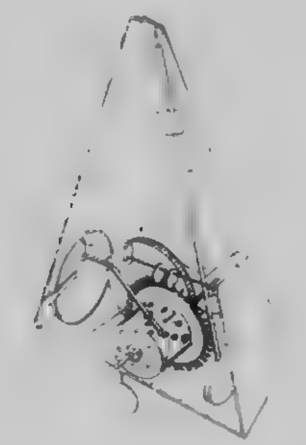
wheel shaft and is normally fixedly connected to said toothed wheel for rotation therewith, to actuate said bell striker,

characterized by the following features:

a. said toothed wheel and said bell drum each comprise toothings facing each other, by means of which said toothed wheel and said bell drum are in positive engagement with each other in defined angular positions;



b. said toothed wheel and said bell drum are axially displaceable relative to each other on said toothed wheel shaft in order to release their mutual positive engagement and to alter their angular position;

c said toothed wheel and said bell drum are kept in mutual positive engagement by releasable holding means

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4,759,254

WEAPON ARRANGEMENT

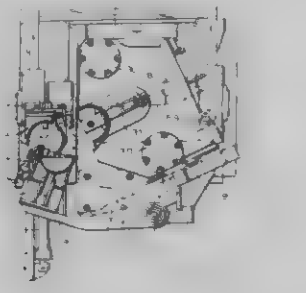
Erich Zielinski, Haan, and Gert Winkler, Meerbusch, both of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Duesseldorf, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 580,526, Feb. 15, 1984, abandoned. This application Apr. 18, 1986, Ser. No. 853,454

Claims priority, application Fed. Rep. of Germany, Feb. 23, [redacted]

Int. Cl.⁴ F41H *7/06*

U.S. Cl. 89—24 **2 Claims**



1. A weapon arrangement built in a turret for the improved loading of projectiles into a gun barrel having a gun barrel axis, a loading device in the space between an ammunition feed magazine and a loading chamber of the gun barrel, a trunion axis, and a driven rammer for chambering the projectile, the improvement comprising

a bottom member with a wedge breech block, said breech block slidably mounted at an angle of 65 degrees with respect to a vertical plane normal to the trunnion axis and at an angle of 25 degrees with respect to a horizontal plane containing the trunnion axis,

said bottom member includes a loading trough which is parallel to said breech block and is open to the rear;

a cradle, said gun barrel being mounted on said cradle, said cradle containing a portion extending rearwardly and parallel to the gun barrel axis, and

a loading tray for positioning a projectile in alignment with the gun barrel axis, said loading tray being pivotally mounted on said cradle portion to move transversely with respect to said gun barrel axis,

wherein said ammunition feed magazine is horizontally mounted in said turret,

a transfer arm pivotally mounted about the trunnion axis of the gun barrel and coacting with said loading tray when said loading tray is in an ammunition transfer position, and

ammunition advancing means operatively mounted in said magazine for advancing a projectile from said magazine diagonally downwardly to said transfer arm for transfer thereto.

4,759,255

BRAKE BOOSTER WITH SOLENOID VALVES

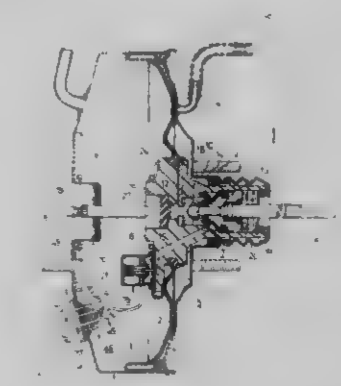
Morihiko Shimamura, Saitama, Japan, assignor to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed May 26, 1987, Ser. No. 53,994

Claims priority, application Japan, May 26, 1986, 61-120834; May 30, 1986, 61-81859[U]; May 30, 1986, 61-81861[U]; Jun. 12, 1986, 61-89979[U]

Int. Cl.⁴ F01B *25/02;* **F15B** *9/10*

U.S. Cl. 91—6 **13 Claims**



1. A brake booster including a power piston slidably disposed within a shell, a valve mechanism received in a valve body which is disposed in an axial portion of the power piston, a constant pressure chamber and a variable pressure chamber defined forwardly and rearwardly, respectively, of the power piston, as viewed in the direction of operation thereof, a first passage formed in the valve body for providing a communication between the constant and the variable pressure chamber through the valve mechanism, a second passage formed in the valve body for providing a communication between a source of fluid pressure and the variable pressure chamber through the valve mechanism, an input shaft operating upon a valve plunger, which forms part of the valve mechanism, to change a flow path in order to supply fluid pressure to the variable pressure chamber to cause the power piston to move forwardly, a cylindrical, reentrant portion formed in an axial portion of the shell, and an output shaft having its one end mechanically coupled to the valve body and having its free end projecting externally through the reentrant portion;

characterized by a solenoid valve disposed within the constant pressure chamber and mounted on the valve body for opening and closing the first passage.

4,759,256

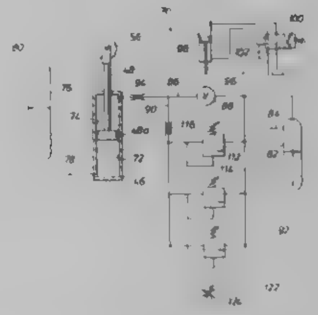
TENSIONER RECOIL CONTROL APPARATUS

Sheldon L. Kovit; Bryan K. Yam, both of Houston, Tex., and Douglas W. J. Nayler, Mission Viejo, Calif., assignors to NL Industries, Inc., New York, N.Y.

Continuation of Ser. No. 600,525, Apr. 16, 1984, abandoned. This application May 23, 1986, Ser. No. 866,781

Int. Cl.⁴ F15B *13/04*

U.S. Cl. 91—29 **31 Claims**



1. Apparatus for controlling fluid communication with a fluid pressure system, comprising:

a. a first flow path connected to said system whereby fluid may be communicated with said system;

b. first normally open valve means included in said first flow path for selectively closing said flow path to prevent such fluid communication along said flow path;

c. a second flow path connected to said system for fluid communication with said system; and

d. second normally closed valve means included in said second flow path and responsive to fluid pressure in said second flow path to move from a first configuration, in which said second valve means is closed to fluid communication therethrough, to a second configuration in which said second valve means is open to fluid communication therethrough along said second flow path;

e. whereby fluid may communicate with said system along said first flow path when said first valve means is open, and, whereby said first valve means may be closed, and after pressure in said second flow path has increased to move said second valve means to said second configuration, fluid may communicate with said system along said second flow path.

4,759,257

POWER UNIT PARTICULARLY FOR REFUSE [redacted]

Henry M. Hand, Jr., Knoxville, Tenn., assignor to Dempster Systems Inc., Toccoa, Ga.

Filed Jan. 27, 1987, Ser. No. 7,276

Int. Cl.⁴ F15B *11/18*

U.S. Cl. 91—168 **10 Claims**

1. A power unit particularly adapted for movement of a compaction head in a refuse container comprising:

housing means provided with a chamber therein,

means within the housing means forming a main passage,

means forming a first auxiliary passage leading from the main passage to the chamber of the housing means,

means forming a second auxiliary passage leading from the main passage to the chamber of the housing means,

a tubular valve within the main passage, the tubular valve being provided with a cylindrical wall having a first opening and a second opening, the openings being spaced apart axially along the cylindrical wall,

first spring means, the first spring means normally positioning the tubular valve in a first position in which the first opening of the tubular valve is in communication with the first auxiliary passage, the tubular valve being movable by the first spring means to a second position in which the second opening of the tubular valve is in communication with the second auxiliary passage,

an abutment valve within the main passage and in axial alignment with the tubular valve, the tubular valve having an end portion engagable with the abutment valve, the abutment valve being provided with an orifice therethrough which is in communication with the tubular valve,

second spring means, the second spring means urging the abutment valve toward the tubular valve,

an end wall enclosing the main passage, the end wall having an auxiliary orifice therethrough in communication with the main passage,

an auxiliary valve resiliently engaging the end wall and normally closing the auxiliary orifice,

a source of fluid,

conduit means connecting the source of fluid to the main [redacted]

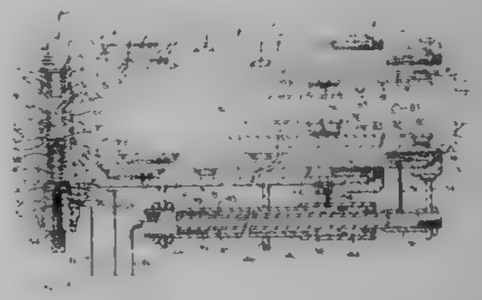
a fluid return line in communication with the auxiliary orifice for flow of fluid from the auxiliary orifice to the source of fluid,

a tubular conduit within the chamber and in communication with the first auxiliary passage,

a first piston, the first piston encompassing the tubular conduit,

an inner cylinder encompassing the tubular conduit and attached to the first piston,

an outer cylinder attached to the first piston and encompassing the inner cylinder and coaxial with first piston and the inner cylinder and spaced from the inner cylinder,



a second piston, the second piston being positioned between the outer cylinder and the inner cylinder and coaxial therewith and movable with respect thereto,

an actuator cylinder attached to the second piston and positioned between the inner cylinder and the outer cylinder and coaxial therewith and movable with respect thereto,

a closure wall attached to the actuator cylinder and enclosing the actuator cylinder,

whereby fluid is forced from the source of fluid and through the conduit means and into the main passage and fluid flows into the tubular valve and through the tubular valve and fluid flows from the tubular valve through the first opening thereof, the fluid flowing from the first opening and into the first auxiliary passage and through the first auxiliary passage and into the tubular conduit within the chamber, the fluid engaging the closure wall and also flowing between the inner cylinder and the outer cylinder and engaging the second piston and forcing the second piston and the actuator cylinder and the closure wall in a direction from the housing means, until opposing forces prevent further movement of the second piston and the actuator cylinder and the closure wall in a direction from the housing means, fluid also flowing from the tubular valve through the orifice in the abutment valve and to the end wall, whereby with increased fluid pressure within the main passage, the auxiliary valve is forced to move from the end wall to open the auxiliary orifice and permit-

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ting flow of fluid through the orifice in the end wall, whereby the first spring means moves the tubular valve from the first position thereof to the second position thereof and the abutment valve moves with the tubular valve, whereby the cylindrical wall of the tubular valve closes the first auxiliary passage and traps fluid within the chamber which has flowed into the chamber through the first auxiliary passage, the tubular valve in its second position positioning the second opening thereof in communication with the second auxiliary passage for flow of fluid from the tubular valve into the second auxiliary passage and into the chamber, the second auxiliary passage leading to the first piston whereby the fluid flowing into the chamber through the second auxiliary passage engages the first piston and forces movement of the first piston, whereby the first piston moves and applies increased pressure upon the second piston and upon the fluid trapped within the chamber and whereby the first piston and the second piston and the actuator cylinder and the end wall are moved farther in a direction from the housing means

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4,759,258
FLUID POWERED ACTUATOR SYSTEM

Peter J. Maltby, Codsall; Stanley G. Glaze, Brierley Hill; Terence J. Capewell, Wheaton Aston, and Philip Clarke, Penn, all of England, assignors to Lucas Industries, P.L.C., England

Filed Aug. 7, 1985, Ser. No. 763,235

Claims priority, application United Kingdom, Aug. 11, 1984, 8420488

Int. Cl.⁴ F01L *15/00*

U.S. Cl. 91—171 6 Claims

1. A fluid power actuator system comprising two fluid-powered actuators coupled to provide a combined output, two valve devices each including a spool and operable to apply fluid pressures to respective actuators, a first differential arrangement responsive to operating positions of said spools of said valve devices for providing an error output when the positions differ by more than a predetermined amount, and valve means for removing a pressure supply to said valve devices in response to the error output, each valve device further including means coacting with one end of the spool of said valve device for moving that spool to a selected position and a pair of biasing means coacting with the other end of that spool for urging that spool to a central position in which no fluid pressure is applied to the respective actuator, each of said biasing means being insufficient by itself to operate said first differential arrangement.

4,759,259
SERVO-CONTROL FOR POWER STEERING [redacted]

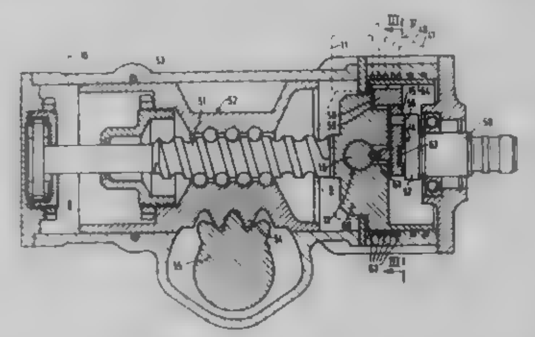
Günter Wörner, Kernen; Arno Röhringer, Ditzingen, and Reinhold Abt, Neuhausen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Dec. 23, 1986, Ser. No. 945,498

Claims priority, application Fed. Rep. of Germany, Dec. 23, [redacted]

Int. Cl.⁴ F15B *9/10*

U.S. Cl. 91—373 32 Claims



1. Servo-control, in particular power steering for motor vehicles, having an input end shaft part means connected to a steering wheel and a mechanism connecting this shaft part means to an output end shaft part means connected to a steering gear, which mechanism operates with a relatively large transmission ratio and is used to adjust a control slide of a servo-valve unit, which control slide is deflected from a central position, in the case of rotational movements of the shaft parts, by means of the mechanism as a function of the magnitude of the rotational movement of the shaft parts and as a function of the direction of rotation in one direction or the other of the shaft parts, and by this means connects a servomotor, controlled by the servo-valve unit and drive-connected to the control of steering gear, to a pressure source so as to produce a forward or rearward motion with a setting force which depends on the magnitude of the displacement of the control slide, wherein the mechanism is located directly between the input end shaft part means and the output end shaft part means, elastically connected on the same axis as the input end shaft part means, and the servo-valve unit is located on the output end shaft part means, such that, as the mechanism, a setting lever directly actuating the control slide, is rotationally supported on the input end shaft part means by means of a support pin located parallel and eccentric to the shaft axis and is hinge-connected or coupled to the output end shaft part means on the support pin side of the shaft axis and at a radial distance from the support pin.

4,759,260
SUPER RELIABLE AIR-SPRING RETURN AIR [redacted]

Yon S. Lew, 7890 Oak St., Arvada, Colo. 80005

Continuation-in-part of Ser. No. 125,554, Feb. 28, 1980, which is a continuation-in-part of Ser. No. 907,030, May 17, 1978, Pat. No. 4,226,167. This application Aug. 12, 1985, Ser. No. 764,926

Int. Cl.⁴ F15B *15/22*

U.S. Cl. 91—394 3 Claims

1. An air-spring return actuator cylinder comprising in combination:

(a) a cylindrical body including a first cylindrical cavity and a second cylindrical cavity disposed substantially in line to one another;

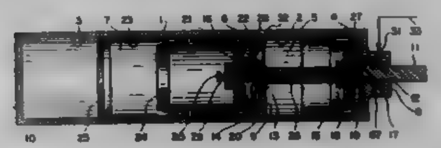
(b) an actuator rod slidably engaging and extending through at least a first hole disposed through at least one end wall of said cylindrical body and through a second hole disposed through a partitioning wall separating said first and second cylindrical cavities in a leak-proof fashion wherein said actuator rod is disposed in a substantially coaxial relationship with respect to said first and second cylindrical cavities;

(c) a first slidable partitioning body rigidly affixed to said actuator rod in a coaxial relationship and slidably disposed in said first cylindrical cavity, said first slidable partitioning body dividing said first cylindrical cavity into a first and a second compartment in a leak-proof fashion;

(d) a second slidable partitioning body rigidly affixed to said actuator rod in a coaxial relationship and slidably disposed in said second cylindrical cavity, said second slidable partitioning body dividing said second cylindrical cavity into a third and a fourth compartment in a leak-proof fashion;

(e) a first port open to said first compartment and open to a common pressure source;

(f) a vent port open to said second compartment for venting said second compartment;



(g) a second port open to said third compartment and open to said common pressure source;

(h) a third port open to said fourth compartment and open to said common pressure source; and

(i) a check valve included in a compressed air passage through said third port wherein said check valve allows the compressed air to flow into said fourth compartment and prevents the compressed air trapped in said fourth compartment from flowing out of said fourth compartment; whereby, said check valve provides self-charging and self-recharging capability for said fourth compartment producing air-spring effect that automatically actuates said air-spring return actuator cylinder to a fail-safe position when said first and third compartments are intentionally or accidentally depressurized;

whereby, pressurization of said first and third compartments actuates said air-spring return actuator cylinder to a position opposite to said fail-safe position and intentional or accidental depressurization of said first and third compartments automatically actuates said air-spring return actuator cylinder back to said fail-safe position.

4,759,261
THREE-WAY THREE-POSITION VALVE FOR COOLING A REVERSIBLE HYDRAULIC MACHINE

Wilhelm Flieter, Hattingen/Ruhr, Fed. Rep. of Germany, assignor to G. Düsterloh GmbH, Sprockhövel, Fed. Rep. of [redacted]

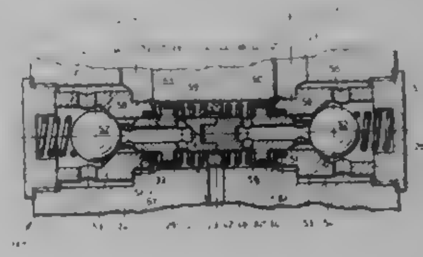
Filed Dec. 12, 1985, Ser. No. 808,433

Claims priority, application Fed. Rep. of Germany, Dec. 18, [redacted]

Int. Cl.⁴ F15B *11/08;* **F16K** *17/18, 31/122*

U.S. Cl. 91—420 8 Claims

1. A distributing valve arrangement for a reversible hydraulic machine, particularly a hydraulic motor, having two connecting passages for the supply and discharge of a hydraulic operating medium at different pressures to and from the machine, comprising wall means defining a circumferential surface for bounding a connecting channel between the connecting passages; a piston received in said connecting channel for displacement in opposite directions from a neutral position thereof and including two piston heads having respective end faces, and a reduced-diameter central portion extending between said piston heads; spring means for biasing said piston toward said neutral position thereof; means for admitting the hydraulic operating medium from each of the connecting passages to a different one of said end faces for the higher of the pressures prevailing in the connecting passages to displace said piston against the action of said spring means out of said neutral positions and toward a respective end position thereof; conduit means formed in said wall means for discharging the hydraulic operating medium from a region of said connecting channel that is delimited by said piston heads and said central portion of said piston; a central closing member supported on said central portion of said piston and being slidable on said circumferential surface of said wall means so as to open or close said conduit means, said central closing member being positioned in said wall means so as to limit in the region of said conduit means two spring-receiving spaces in said region; two centering spring means received in said spring-receiving spaces, respectively and urging said closing member toward a central position thereof relative to said piston, in which it interrupts communication between said region and said discharging means when said piston is in said neutral position thereof; and means including a hydraulic resistance for establishing communication between said two spring-receiving [redacted]



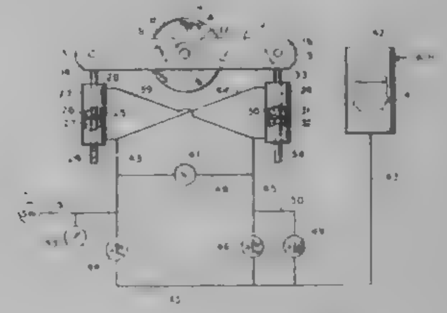
[redacted]
APPARATUS FOR RESTRAINING ROTARY MOTION OF [redacted]

Robert A. Hay, II, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 11, 1987, Ser. No. 48,180

Int. Cl.⁴ F15B *15/22;* **F16M** *13/00*

U.S. Cl. 92—8 4 Claims



1. An apparatus that allows linear motion of a motor, but restrains rotary motion of a component of the motor, the apparatus comprises:

a motor that includes a rotatable shaft and a housing that encloses the shaft:

the rotatable motor shaft engages a rotary motion device;

a lever arm that has a center point, a left end, a right end, a first edge, and a second edge, the lever arm is fastened to the motor housing at its center point, a lever arm pivot means is fastened to each end of the lever arm, and each lever arm pivot means is an equal distance from the center point of the lever arm;

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a left hydraulic cylinder including a single piston head that divides the cylinder into a front chamber and a rear chamber, and a piston rod that extends through the piston head and each chamber;

a right hydraulic cylinder, the cylinder includes a piston head that divides the cylinder into a front chamber and a rear chamber, and a piston rod that extends through the piston head and each chamber;

a left support member and a right support member, each support member includes a support member pivot means, and each pivot means is spaced from the second edge of the lever arm;

the left hydraulic cylinder is fastened to the left support member pivot means, and one end of the piston rod in this cylinder is fastened to the left end lever arm pivot means:

the right hydraulic cylinder is fastened to the right support member pivot means, and one end of the piston rod in this cylinder is fastened to the right end lever arm pivot [redacted]

the piston head in both hydraulic cylinders has an equivalent operating surface area, both cylinders are positioned adjacent to the second edge of the lever arm, both cylinders are parallel to each other, and both cylinders are filled with hydraulic fluid:

a hydraulic balancing system, the system includes a first fluid line that connects the front chamber of the left hydraulic cylinder to the rear chamber of the right hydraulic cylinder, and a second fluid line that connects the front chamber of the right hydraulic cylinder to the rear chamber of the left hydraulic cylinder;

wherein, in operation, the rotary motion device tends to cause the motor housing and lever arm to rotate in a direction opposite to the rotary motion of said device, and, in response to this rotational motion, the hydraulic cylinders attempt to displace equivalent volumes of hydraulic fluid at equal pressures in opposing directions, to thereby restrain rotational motion of the motor housing and lever arm.

4,759,263
[redacted]

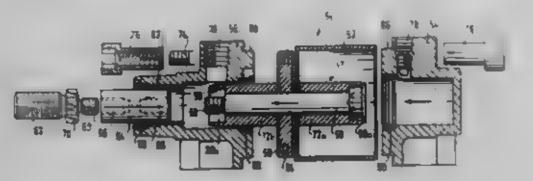
Robert Lehle, Herrenberg, Fed. Rep. of Germany, assignor to Leibfried Maschinenbau GmbH, Herrenberg, Fed. Rep. of [redacted]

Filed Jun. 26, 1987, Ser. No. 67,605

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1986, 3623143

Int. Cl.⁴ F01B *31/14, 29/04*

U.S. Cl. 92—13.41 7 Claims



1. A fluid operated device; comprising:

a housing;

piston means reciprocating in said housing and including a piston, a piston rod having an inner rod section supporting said piston, an outer rod section adapted for connection with an external unit, and an intermediary rod section connecting said inner and outer rod sections to each other; [redacted]

support means for axially retaining said piston on said inner rod section, said support means including two bushings extending along said inner rod section and sandwiching said piston therebetween, at least one of said bushings facing said intermediary rod section having an end face provided with a cylindrical recess which defines a fitting surface sliding over the cylindrical outer surface of said intermediary rod section during assembly of said piston rod.

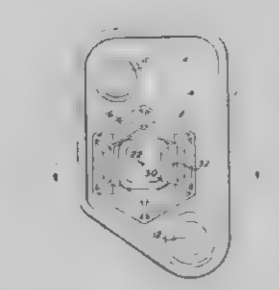
4,759,264
PARENTERAL SOLUTION DIAPHRAGM PUMP

Hal C. Danby, Sudbury, England, and Carl Ritson, San Jose, Calif., assignors to Critikon, Inc., Tampa, Fla.

Filed Nov. 18, 1985, Ser. No. 799,235

Int. Cl.⁴ F01B *19/00;* **F16J** *3/00*

U.S. Cl. 92—99 7 Claims



1. A diaphragm pump comprising a pumping chamber defined by an inflexible member having a first chamber surface and a flexible member having a second chamber surface opposed thereto, the flexible member comprising a central inflexible plate surrounded by at least three inflexible peripheral plates with substantially flat chamber surfaces and edges in a common plane, each plate having at least two straight plate hinge edges, each straight plate hinge edge being adjacent to and opposing a straight plate hinge of an adjacent plate, the opposing edges of each straight plate hinge edge and opposing straight plate hinge edge being attached together by a thin flexible hinge strip which separates said opposing straight edges by a uniform distance along said opposing edges.

4,759,265
PISTON AND CYLINDER UNIT

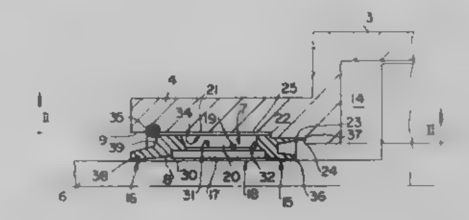
Kurt Stoll, and Gerhard Hihn, both of Lenzhalde 72, 7300 Esslingen, Fed. Rep. of Germany

Filed Apr. 29, 1987, Ser. No. 43,944

Claims priority, application Fed. Rep. of Germany, May 17, [redacted]

Int. Cl.⁴ F01B *31/10;* **B61F** *15/22;* **F16J** *9/08*

U.S. Cl. 92—153 20 Claims



1. A piston and cylinder unit comprising:

a cylinder having an end cap the end cap forming an end wall and a tubular portion coaxial with said cylinder;

a piston positioned within said cylinder and movable in said cylinder while making sealing contact with an inner face of said clyinder said piston cylinder and end cap defining a working chamber;

a piston rod connected to said piston and extending through said working chamber and out of said cylinder through the tubular portion of said end cap;

a supporting and sealing unit positioned within said tubular

portion and removable from said tubular portion as a single unit, including

a sealing member having an annular sealing portion adapted to surround said piston rod adjacent said piston, an annular stripper portion axially spaced from said sealing portion on a side of said sealing portion away from said piston and a plurality of circumferentially spaced ribs joining said sealing portion and said stipper portion,

a piston supporting bushing arranged so as to be retained with respect to said sealing member axially between said sealing and stripper portions, the sealing and stripper portions acting as retension holders, and radially between said circumferentially spaced ribs and said piston rod,

at least one lubricant reservoir between said annular sealing portion and said annular stripper portion and between said circumferentially spaced ribs, said reservoir opening onto at least a part of an outer circumferential surface of the supporting bushing, said supporting bushing being permeable to lubricant at least in a radial direction.

4,759,266
MULTIPLE PART OIL-CONTROL RING FOR PISTON

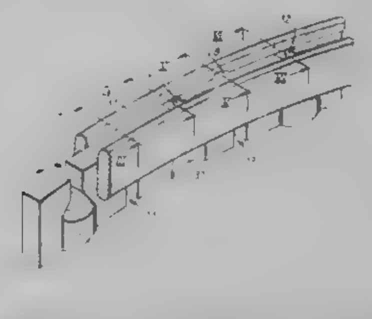
Edward J. Murray, West Yorkshire, United Kingdom, assignor to AEPLC, Warwickshire, United Kingdom

Filed Jan. 12, 1987, Ser. No. 2,169

Claims priority, application United Kingdom, May 17, 1985, PCT No. PCT/GB86/00266, § 371 Date Jan. 12, 1987, § 102(e) Date Jan. 12, 1987, PCT Pub. No. WO86/06810, PCT Pub. Date Nov. 20, 1986

Int. Cl.⁴ F16J *1/06*

U.S. Cl. 92—205 9 Claims



1. A multiple-part oil-control ring for a piston which comprises an expander ring (11) and at least one lamellar rail (31) supported by the expander (11), characterized in that the expander (11) is formed from a flat strip of spring material having a first series of notches (12) along one edge (14) and a second series of notches (13) alternating with the first series (12) along the other edge (15), the material between the notches (12) of the first series and the other edge (15) of the strip being deformed to provide lugs (23) standing proud of the surface of the strip, said notches having a neck (16, 17) widening to an opening (18, 19) extending toward the opposite edge of the strip, the strip being bent to form the expander ring with the one edge (14) at the outer circumference of the ring and the other edge (15) at the inner circumference of the ring, whereby the lugs (23) provide a series of supports for the lamellar rail (31).

4,759,267
ENERGETIC FLUID PRODUCT AND ITS APPLICATION TO THE SUPPLY OF COMBUSTIBLE MATTER TO A [redacted]

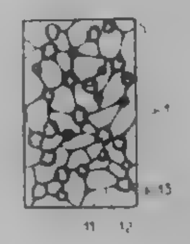
Robert Wang, Wissous, and Gérard Antonini, Pierrefonds, both of France, assignors to Creusot-Loire, Paris, France

Filed Apr. 9, 1984, Ser. No. 597,860

Claims priority, application France, Apr. 8, 1983, 83 05787

Int. Cl.⁴ C10L *1/32*

U.S. Cl. 44—51 8 Claims



1. Energetic fluid product containing finely divided solid combustible matter suspended in at least one liquid phase and capable of being circulated in a duct for feeding a treatment chamber, wherein solid particles (13) are constituted by powdered coal and the proportion by weight of solid phase is about 75%, said solid particles (13) being homogeneously dispersed within a stable foam produced by mixing a gas phase with said liquid phase to which stabilizing and emulsifying products have been added, and said liquid phase consists solely of fine films (12) connecting said solid particles (13) together and confining gas bubbles (11) which occupy spaces between said solid particles (13).

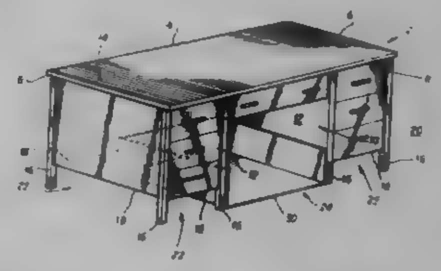
[redacted]
DESK DRAFT GUARD

Claiborne J. Toups, P.O. Box 1310, Thibodaux, La. 70302

Filed Jul. 26, 1988, Ser. No. 860,044

Int. Cl.⁴ A47B *97/00*

U.S. Cl. 98—1 8 Claims



1. A desk draft guard disposable in occluding position to a horizontal opening defined between the bottom of a desk and a floor for guarding against a draft through the horizontal opening from reaching the kneehole of the desk, wherein the kneehole is defined by three vertical walls, comprising:

rigid panel means having three interconnected vertical panels corresponding to the respective three vertical walls of the kneehole being disposable on the floor in nested relationship within the kneehole and terminating at a vertical height greater than the bottom of the desk to thereby fully occlude said horizontal opening about the periphery of the kneehole for guarding against a draft through the horizontal opening from reaching the kneehole of the desk as aforesaid.

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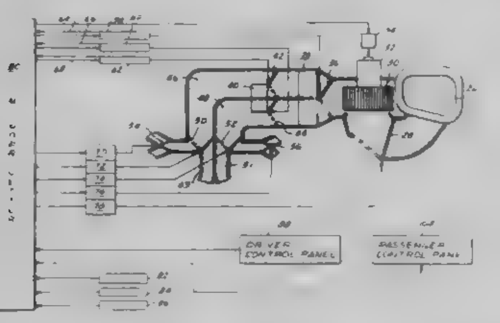
4,759,269
AIRCONDITIONING CONTROL SYSTEM FOR AN AUTOMOTIVE VEHICLE

Kenneth G. Brown, Milford; Richard C. Berry, Westland; William W. Boddie, Ann Arbor, and Louis E. Colombo, Chelsea, all of Mich., assignors to Ford Motor Company, Dearborn, [redacted]

Filed Dec. 22, 1986, Ser. No. 945,154
Int. Cl.⁴ B60H *1/00*
U.S. Cl. 98—2.01 **23 Claims**

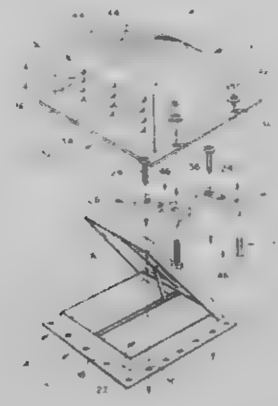


12. A method for supplying conditioned air at independent flow rates to multiple locations within a motor vehicle, comprising the steps of:
reading individual inputs from each of said multiple locations of said motor vehicle, where each of said inputs corresponds to a desired airflow rate;
adjusting the speed of a single blower employed for the purpose of supplying a passenger compartment with conditioned air in response to said inputs; and
apportioning the output of said blower, based upon said inputs from said multiple locations, between a plurality of air distribution systems for supplying conditioned air to said multiple locations.

4,759,270
VENT CAP COVER

John R. Lindeen, Odessa, Fla., assignor to Jack Lindeen Company, Inc., Odessa, Fla.

Filed Nov. 2, 1987, Ser. No. 115,830
Int. Cl.⁴ B60H *1/26*
U.S. Cl. 98—2.14 **8 Claims**

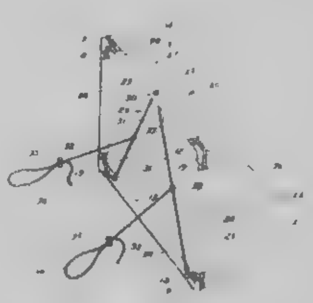


1. A vent cap cover for use with a ventilation assembly of a motor home, travel trailer or the like to permit a vent cap of the ventilation assembly to remain open while preventing rain and insects from entering the interior of the motor home, travel trailer or the like through the port of the ventilation assembly, said vent cap cover comprises a hollow enclosure including a plurality of vent louvers formed therein affixed to the motor home, travel trailer or the like by a plurality of vent cap cover brackets to operatively contain the ventilation assembly, said hollow enclosure having a peripherial attachment flange formed about the lower periphery thereof, said peripherial attachment flange having a plurality of bracket apertures formed therethrough to receive a corresponding plurality of vent fasteners and each said vent cap cover bracket comprises a bracket member having a slot formed through the inner portion thereof and a channel formed through the outer portion thereof to receive said corresponding plurality of vent fasteners and a corresponding plurality of vent cap cover fasteners respectively therethrough to secure said vent cap cover brackets to said ventilation assembly and said hollow enclosure to said vent cap cover brackets.

4,759,271
WIND DEFLECTING VENTILATOR

Louis P. Bliemeister, 774 Hendrickson Rd., Sequim, Wash. [redacted]

Filed Dec. 14, 1987, Ser. No. 132,177
Int. Cl.⁴ B63B *19/06*
U.S. Cl. 98—37 **12 Claims**

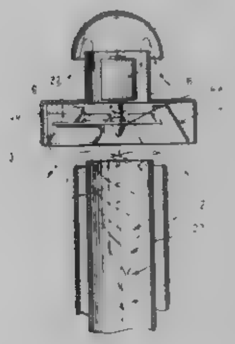


1. A portable ventilator adapted to deflect a stream of air down a boat hatchway, which comprises:
a foldable upstanding quadrilateral frame having an opening for the passage of wind therethrough adapted to rest on a boat deck adjacent to a partially opened hatch,
at least four hinge-like couplings connecting the sides at corners of the four sided frame,
a first ligature having a middle portion of a length fastened to an upper side intermediate of the spaced corners thereon and the divided portions of the length being fastened to a lower side adjacent to the spaced corners thereon,
a flexible receptacle having an opening corresponding to said frame opening consisting of a top, bottom and side edges connected to notched out portions at said corners of the receptacle, the notches providing separated flaps adapted to wrap around and be secured to said frame sides, said receptacle further including a pair of spaced arcuate side panels and a covering panel having side edges connecting to the arcuate side edges of the side panels,
a pair of second ligatures having inner ends fastened separately to one of each of the divided lengths and the outer free ends being loosely extended for connecting means,
means in combination with the connecting means adapted to fasten said frame and receptacle to the sides of the partially opened hatch for receiving and deflecting the wind down the hatchway, and
means in cooperation with the upstanding frame and hinge-like couplings adapted to fold said frame consists of two of said sides and connecting coupling being folded diagonally to the opposite coupling and connecting sides and the remaining upstanding coupling and sides being folded downwardly to the opposite of said sides and coupling.

4,759,272
VENTILATOR

Michel Zaniewski, L'Arceliere 70, Av. F. deLesseps, Frontignan, France 34110

Filed Jun. 3, 1986, Ser. No. 870,256
Claims priority, application France, Jun. 3, 1985, 85 08697
Int. Cl.⁴ F23L *17/02*
U.S. Cl. 98—42.05 **21 Claims**

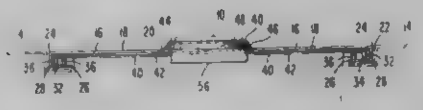


6. A ventilator comprising a rotating plate provided on its lower surface with blades forming a centrifugal turbine surmounting the mouth of a ventilation duct or ducts in whose axis said turbine creates an ascending vortex effect, characterized in that a forced aspiration to which the main duct of ducts are subjected is obtained by the rotation of a turbine (4*a*) comprising a plurality of blades (10) fastened to a lower surface of said plate (4), said blades having a trough shape facing away from the direction of rotation of the turbine and an inner edge that makes an angle of less than 90 degrees with said plate.

4,759,273
SPLASH RETAINING ASSEMBLY FOR USE WITH A COFFEEMAKER

William Kauffman, 63 Robbinsville-Allentown Rd., Robbinsville, N.J. 08691

Filed Jul. 30, 1987, Ser. No. 79,616
Int. Cl.⁴ A47J *31/44*
U.S. Cl. 99—279 **19 Claims**

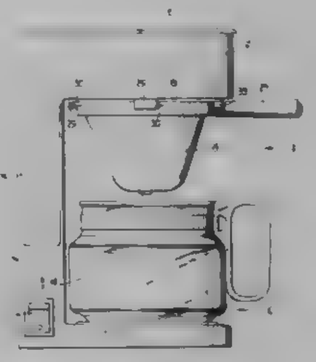


1. A splash retaining assembly, for use with a coffeemaker having a spray head and a brew basket mountable therebelow within basket support guides, comprising:
(a) a main plate means extending generally horizontally and adapted to be removably positionable mounted within the basket support guides, said main plate means further including:
  (1) a horizontal section extending generally horizontally between the basket support guides and defining a main central aperture therein positioned vertically below the spray head of the coffeemaker;
  (2) vertical sections at the laterally outermost edges of said horizontal section and extending downwardly therefrom;
  (3) lower lip means extending laterally inwardly from the lowermost edges of said vertical sections, said lower lip means in cooperation with said horizontal section and adjacent vertical section defining longitudinally extending slot means along each outermost lateral edge of said horizontal section adapted to receive a conventional brew basket detachably mounted therein;
  (4) a main biasing means located adjacent said slot means and extending outwardly therefrom to bias said splash retaining assembly firmly in position within the basket support guides;
  (5) a basket biasing means positioned within said slot means and adapted to exert bias against a brew basket positioned therein to firmly retain the brew basket in place while allowing selective removal thereof;
(b) a shield plate means secured to said main plate means and adapted to be positioned adjacent to the spray head thereabove, said shield plate means including:
  (1) an outer section extending generally horizontally and being adjacent said horizontal section of said main plate means; and
  (2) an upper section generally centrally located with respect to said outer section and extending upwardly and inwardly therefrom, said upper section defining a central shield aperture therein adapted to be positioned above said main central aperture of said main plate and immediately below the spray head for shielding same from coffee vapors rising from the brew basket.

4,759,274
[redacted]

Heinrich Schmidt, Porta Westfalica, Fed. Rep. of Germany, assignor to Melitta-Werke Bentz & Sohn, Minden, Fed. Rep. of Germany

Filed Dec. 12, 1986, Ser. No. 941,172
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1985, 8535291[U]
Int. Cl.⁴ A47J *31/24*
U.S. Cl. 99—295 **13 Claims**



1. An apparatus for making coffee and delivering it to a coffee receptacle, comprising:
a fresh water container having an outlet;
a movable closing member for the outlet;
a heating assembly disposed in the container;
a filter vessel disposed above the receptacle to accommodate coffee grounds and release brewed coffee to the receptacle; and
means for releasably connecting the filter vessel to the container at a connection region so that the filter vessel is disposed below the container and is sealed to the container at the connection region, and

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wherein the container comprises a bottom element having a downwardly descending and approximately conical portion, the outlet of the container being provided in the lowest region of the approximately conical portion, the bottom element having a periphery and the filter vessel having an upper rim, and wherein the means for releasably connecting comprises a sealing shoulder affixed to the bottom element adjacent the periphery thereof, and means for urging the upper rim toward the sealing shoulder.

4,759,275
GLASS POT FOR DECOCTING CHINESE HERBS OR TEAS

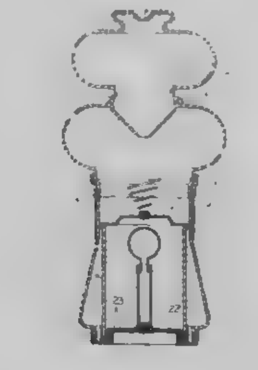
Sang J. Lee, 221-38, Suyu 3-Dong, Dobong-Ku, Seoul, Rep. of [redacted]

Filed Aug. 18, 1987, Ser. No. 86,489

Claims priority, application Rep. of Korea, Aug. 19, 1986, [redacted]

Int. Cl.⁴ A47J *31/18*

U.S. Cl. 99—317 2 Claims



1. A glass pot for decocting Chinese herbs or tea comprising.
a glass pot body with a metal bottom having an upward circular protrusion at the center thereof;
a small container received in the interior of the said pot body, said container including a container body made of glass and a bottom made of metal having an upward circular protrusion to be fittably overlapped to said protrusion of pot body, said protrusion having a plurality of small holes, and said bottom also having a handle upwardly extending therefrom;
a lid with a rim formed therearound adapted to cover said small container;
and a steam condenser mounted on the upper end of the said pot body and adapted to condense the steam discharged from the pot into water.

4,759,276
FOLD UP LEG BARBEQUE CONVERSION FROM FREE [redacted]

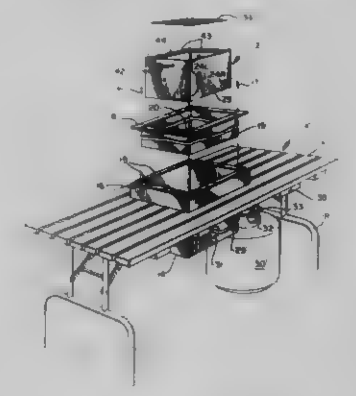
James L. Segroves, 3025 Chisholm Trail, Garland, Tex. 75042

Filed Jan. 20, 1987, Ser. No. 5,218

Int. Cl.⁴ A47J *37/07;* **F24C** *3/14*

U.S. Cl. 99—339 12 Claims

1. A portable barbeque module comprising: an outer rectangular shell having an open top rim and an open bottom rim; upper internal flange means holding a grill; lower internal flange means holding grate means; a bottom skirt portion extending from said lower internal flange means down to said open bottom rim; opposite end first and second leg means pivotally mounted in said bottom skirt portion and foldable between a down free standing state ro a folded up state with said first and second leg means entirely contained within said bottom skirt portion; wherein said grill is a transverse rod grill for supporting food being barbeque grilled at the top of the barbeque cooker: said grate means is an expanded metal open mesh grate; and wherein a heat distributing baffle with multiple distributed openings is mounted on said grate.



4,759,277
FUMIGANT PROBING APPARATUS

Frank Fleck, Arcadia, Calif., assignor to Pestcon Systems, Inc., Alhambra, Calif.

Filed Nov. 17, 1986, Ser. No. 931,529

Int. Cl.⁴ A23L *3/34*

U.S. Cl. 99—482 16 Claims

1. Fumigating apparatus for use in placing solid fumigant in a commodity in a storage compartment, comprising:
an elongated probe;
an elongated gas-permeable sleeve having an open end for receiving fumigant and a closed end, said sleeve being telescoped with said probe for placement in the commodity;
a probe manipulator mechanism comprising drive means disposed around said probe in gripping engagement with the latter and operable when activated to drive the probe endwise, said drive means comprising at least one pair of drive rollers with the probe disposed between the, and means holding said rollers in driving engagement with said probe; and a power operator coupled to said drive means and operable to activate the drive means to drive said probe into the commodity with said sleeve in telescoped relation with the probe;
said power operator being reversible to withdraw said probe from the commodity;
and means for retaining said sleeve in the commodity as the probe in withdrawn.

4,759,278
MACHINE FOR FORMING CYLINDRICAL BALES OF CROP

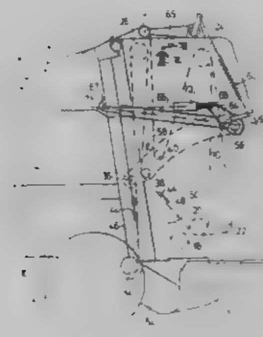
Jean Viaud, Sarreguemines, France, assignor to Deere & Company, Moline, Ill.

Filed Mar. 2, 1987, Ser. No. 20,839

Claims priority, application United Kingdom, Mar. 5, 1986, 8605465

Int. Cl.⁴ B30B *5/06, 9/30*

U.S. Cl. 100—88 4 Claims



1. In a baling machine for forming cylindrical bales, including a main frame having a pair of upright, fore-and-aft extending transversely spaced sidewalls, a bale discharge gate vertically pivotally connected to an upper rear location of said sidewalls for movement between open and closed positions and including opposite sidewalls respectively forming rearward continuations of the main frame sidewalls when the gate is in its closed position, a pair of fore-and-aft extending transversely spaced idler arms having their forward ends fixed to a horizontal transverse shaft having opposite ends respectively pivotally mounted in the main frame opposite sidewalls, a plurality of belt support rolls extending horizontally between and being rotatably supported in the sidewalls of both the main frame and gate, at least one belt take-up roll extending between and being rotatably mounted in said pair of idler arms, a plurality of belts supported in side-by-side relationship on the support and idler rolls and cooperating with the sidewalls of the main frame and gate to define an expansible baling chamber being of minimum and maximum size respectively when the idler arms are in fully lowered and fully raised positions, at least one lever fixed to said transverse shaft, and a hydraulic piston and cylinder unit having opposite ends respectively pivotally connected to the gate and lever by first and second pivot connections, the improvement comprising: spring biasing means coupled to said lever and exerting a force thereon resisting movement of the idler arms from their lowered position; said lever having at least first and second connection points spaced therealong and alternately cooperating to form the second pivot connection of said unit; and said first and second connection points being so located relative to the first pivot connection and shaft that when the idler arms are in their fully lowered positions a maximum resistance to raising of the arms is effected by the unit when said first connection point cooperates to form the second pivot connection, whereby the unit and spring biasing means cooperate to resist raising of the arms, and approximately zero resistance to raising of the arms is effected by the unit when said second connection point cooperates to form the second pivot connection, whereby only the spring biasing means acts to resist raising of the arms.

4,759,279
ROUND BALER HAVING CHAMBER FORMED BY FIXED ROLLS AND EXPANSIBLE BELTS

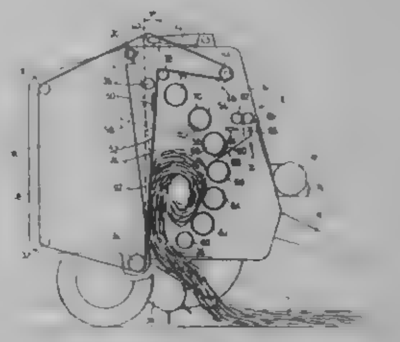
Josef Frerich, Dietrichingen, Fed. Rep. of Germany, assignor to Deere & Company, Moline, Ill.

Filed Mar. 4, 1987, Ser. No. 21,842

Claims priority, application United Kingdom, Mar. 5, 1986, 8605467; Feb. 5, 1987, 8702596

Int. Cl.⁴ B30B *3/04, 5/04*

U.S. Cl. 100—89 8 Claims



1. In a baling machine for making large cylindrical bales and including a baling chamber having a non-expansible forward wall delimited in its entirety by a plurality of chamber rolls rotatably mounted in opposite sidewalls of the machine and an expansible rearward wall delimited in its entirety by a run of an endless flexible element means supported by rotatable support elements mounted to the opposite sidewalls and a take-up and tensioning device for the endless flexible element including a pair of parallel arms respectively vertically pivotally mounted to the opposite sidewalls and carrying take-up roll means engaged with the flexible element and a pair of yieldable arm loading means respectively coupled between the opposite sidewalls and the pair of parallel arms, the improvment comprising: said chamber having a center which substantially coincides with that of a completed bale located in the chamber; said chamber rolls being arranged in an array disposed substantially arcuately about said center with a lowermost chamber roll being located substantially vertically below an uppermost chamber roll; said endless flexible element means including a plurality of side-by-side mounted belts and said rotatable support elements including upper and lower support rolls extending between and being rotatably mounted in the opposite sidewalls; said run being those portions of the belts extending between the upper and lower support rolls with the upper roll being located adjacent the uppermost chamber roll and forwardly of a vertical transverse plane extending tangent to the lower support roll whereby the run is inclined upwardly and forwardly from the lower support roll; and said lower support roll being spaced rearwardly of the lowermost chamber roll thereby defining a crop-receiving throat therebetween.

[redacted]
HYDRAULIC PRESS WITH ADJUSTABLE PLATEN [redacted]

Leon Malashenko, Toronto, Canada, assignor to John T. Hepburn, Limited, Mississauga, Canada

Filed Dec. 29, 1986, Ser. No. 947,263

Int. Cl.⁴ B30B *15/06*

U.S. Cl. 100—257 9 Claims

1. A press comprising:
a frame having a passage;
a reaction member attached to the frame,
a movable platen located between the passage and the reaction member;
platen positioning means for supporting the platen and for

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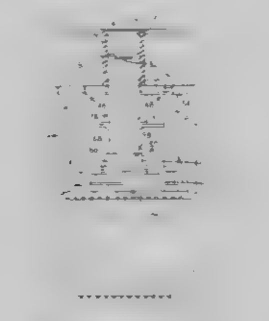
moving the platen between an operating position relatively proximate to the reaction member and a retracted position relatively distant from the reaction member;

a hydraulic ram having a fixed ram end portion which is attached to the platen for movement therewith and having a free ram end portion which locates within the passage when the platen is in the retracted position and which is clear of the passage when the platen is in the operating position, the hydraulic ram vertically separating the fixed ram end portion and the free ram end portion when hydraulically actuated;

passive extension means realeasably attachable to the free ram end portion for extending the free ram end portion; and,

closure means for closing the passage against entry of the free ram end portion when the platen is in the operating position so that actuation of the hydraulic ram causes the hydraulic ram to drive the platen towards the reaction member

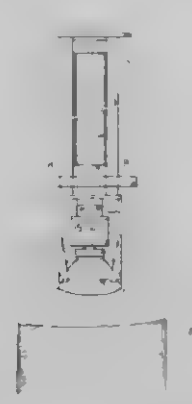


4,759,281
APPARATUS FOR PRESSING STACK OF SIGNATURES
Tamotsu Kasamatsu, Osaka, and Koh Yatsuka, Amagasaki, both of Japan, assignors to Shin Osaka Zoki Co., Ltd., Osaka, Japan

Filed Mar. 13, 1987, Ser. No. 25,531

Int. Cl.⁴ B30B *15/16*

U.S. Cl. 100—295 4 Claims



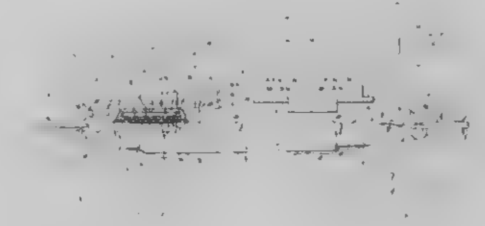
1. An apparatus for pressing a stack of signatures including a first pressing member mounted on a bracket upwardly and downwardly movable by drive means for pressing the stack of signatures over an intermediate upper surface area thereof, a pivotally movable second pressing member connected at its one end to each end of the first pressing member for pressing the signature stack over the remaining upper surface area at each end thereof, an arm for pivotally moving the second pressing member and air cylinder-plunger means for driving the arm, the apparatus being characterized in that the cylinder-plunger means is disposed above the first pressing member and attached to the bracket, the plunger of the cylinder-plunger means being directed downward and having a lateral support member, the arm having one end pivoted to the support member and the other end pivoted to a base end portion of the second pressing member.

4,759,282
APPARATUS FOR SUPPORTING AND CONVEYING IRREGULARLY-SHAPED WORKPIECES
Paul C. Talmadge, Ansonia, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jul. 23, 1987, Ser. No. 76,823

Int. Cl.⁴ B41F *17/00*

U.S. Cl. 101—35 33 Claims



1. Apparatus for processing a workpiece having a flexible upper wall, the apparatus comprising:

(a) a vacuum plenum including a bottom wall having a multiplicity of apertures formed therein;

(b) workpiece feeding means including container means, the container means including an evacuatable enclosure made of a flexible air-impermeable material rendering the enclosure contractable upon evacuation thereof, the enclosure having a top wall dimensioned for receiving thereon a workpiece, the feeding means including means for moving the container means in a predetermined path of travel relative to the bottom wall of the plenum; and

(c) evacuating means including means for

i. evacuating the plenum to cause atmospheric pressure to urge the top wall of the enclosure and an upper wall of a workpiece received thereon into engagement with the bottom wall of the plenum, whereby said top and upper walls are flattened against said bottom wall, and

ii then evacuating the enclosure to cause the remainder of the enclosure to contract towards the plenum and rigidify in the form of a workpiece supporting casting

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4,759,283
VALUE SELECTION MECHANISM FOR POSTAL FRANKING MACHINES
Dennis T. Gilham, Ongar; Peter P. Page, Bishops Stortford, and David A. Gawler, Hutton, all of United Kingdom, assignors to Alcatel Business Systems Limited

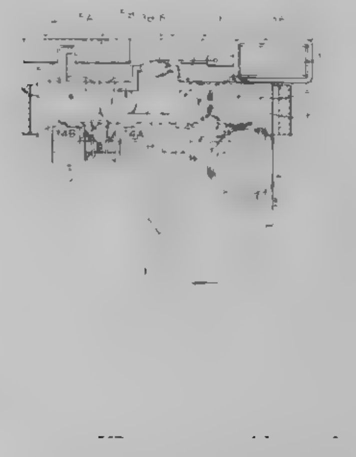
Filed Jul. 2, 1986, Ser. No. 881,346

Claims priority, application United Kingdom, Jul. 4, 1985, [redacted]

Int. Cl.⁴ B41L *7/00*

U.S. Cl. 101—91 7 Claims

1. A postal franking machine comprising a continuously driven rotary power transmission means; a printing drum; printing elements carried by said printing drum and settable to print a selected value; means selectively operable to connect the drum to said transmission means to rotate the drum through one revolution to effect a printing cycle; a pair of lead screws extending parallel to one another; means coupling said lead screws to said rotary power transmission means to effect continuous rotation of said lead screws by said power transmission means, said lead screws being rotated in opposite directions; print element setting means for each printing element; each said print element setting means including a carriage connected to the associated print element and movable in a direction lengthwise of said lead screws; and value setting means selectively operable to connect the carriage with a selected one of said lead screws to move the carriage to a position such as to set the print element associated with that setting means to print a selected value

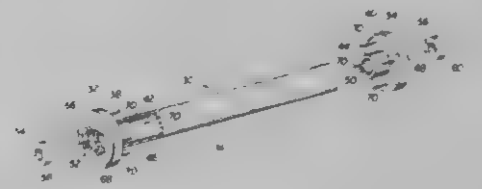


4,759,284
DAMPENER ROLLER APPARATUS
Clifford D. Haggard, Tulsa; Ralph D. Terhune, Broken Arrow, and Garfield A. Wood, III, Tulsa, all of Okla., assignors to Facet Enterprises, Inc., Tulsa, Okla.

Filed Feb. 19, 1986, Ser. No. 831,004

Int. Cl.⁴ B41L *23/18;* B41F *7/26*

U.S. Cl. 101—148 18 Claims



1. A dampener roller cartridge for mounting on a cylindrical support comprising

a core tube of plastic substance having a central bore to receive said cylindrical support, said core tube characterized by having an annular wall thickness at least one third the radius of the tube, and a coherent network structure providing a density of less than 0.5 gram/cc, said plastic substance and said network structure providing said tube with sufficient resilience to be resiliently deformed by a radially applied force by a mating roller and to recover its original shape after the cessation of said radially applied force, and further providing said tube with sufficient rigidity to permit tight slidable mounting of said core tube on said cylindrical support, and

a moisture-absorbent, outer sleeve secured about the circumference of said core tube

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4,759,285
ROTOGRAVURE CYLINDER PROOFING METHOD
Russel N. Fox, and Keith K. Klett, both of Danville, Ill., assignors to Hurletron, Inc., Danville, Ill.

Filed Jul. 14, 1987, Ser. No. 72,910

Int. Cl.⁴ B41F *9/00, 29/04*

U.S. Cl. 101—170 1 Claim

1. A method for proofing a rotogravure cylinder comprising the steps of:

preparing a drum having an outer surface with a plurality of layers in sequence including a plastic insulating layer, a rubber composite layer, a paper/foil layer having a paper slide and a foil side with said paper side disposed adjacent said rubber composite layer, and a proofing sheet layer completely wrapping the exterior of said drum;

attaching a lead to said foil side of said paper/foil layer;

bringing a grounded, inked rotogravure cylinder to be proofed in contact with said drum wrapped by said layers; [redacted]

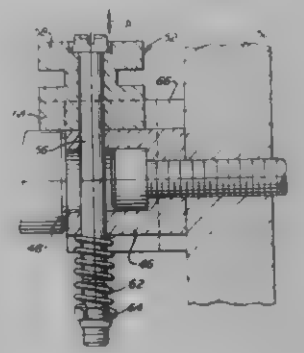
applying a high voltage through said proofing sheet and said foil side of said paper/foil layer to ground while rotating said drum through less than one rotation for assisting in the transfer of ink from said rotogravure cylinder onto said proofing sheet to obtain a rotogravure impression on said proofing sheet.

4,759,286
MOUNTING BRACKET FOR PRINTING OR [redacted]
Stanley Witczak, Chicago, Ill., assignor to AM International, Inc., Chicago, Ill.

Filed May 27, 1987, Ser. No. 54,634

Int. Cl.⁴ B41F *13/20*

U.S. Cl. 101—216 17 Claims



1. A bracket assembly for receiving the axial shaft end of a distribution roller in a printing, duplicating or like machine, comprising:

a pin head structure mounted on a framework of the machine and including axially inwardly facing abutment surface means against which the shaft end of the distribution roller can abut when in proper position in the machine; and

radial containment means movably mounted on the pin head structure for radially containing the distribution roller in said position and for allowing removal of the roller in a radial direction, including a latch member movable from a first position disposed axially outwardly of said abutment surface means to permit the roller to be radially moved into and out of its proper position in the machine and a

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second position disposed axially inwardly of said abutment surface means overlying said shaft end to contain the roller in its proper position in the machine.

4,759,287
UNIT-TO-UNIT REGISTER ADJUSTING APPARATUS FOR USE IN A SHEET-FED ROTARY PRINTING PRESS

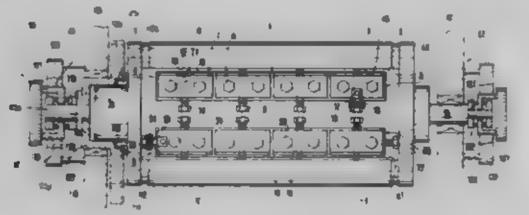
Fumio Shizuya, Saitama, Japan, assignor to Komori Printing Machinery Co., Ltd., Japan

Continuation of Ser. No. 385,186, Jun. 4, 1982, abandoned. This application Mar. 9, 1984, Ser. No. 586,889

Claims priority, application Japan, Jun. 13, 1981, 56-91362

Int. Cl.⁴ B41F *13/12, 27/00, 7/22*

U.S. Cl. 101—248 **14 Claims**



1. A unit-to-unit register adjusting apparatus for use in a sheet-fed rotary printing press having a first and a second support frame, said unit-to-unit register adjusting apparatus comprising:

a plate cylinder for supporting a plate thereon rotatably supported in said first and second support frames;

a circumferential register adjusting mechanism mounted on said first support frame for adjustably displacing said plate cylinder in the circumferential direction thereof;

a lateral register adjusting mechanism mounted on said second support frame for adjustably displacing said plate cylinder in the axial direction thereof;

an axial groove comprising a side and a bottom in an outer circumferential surface of said plate cylinder;

a pair of first and second plate clamping devices mounted in said axial groove and extending axially of said plate cylinder for clamping said plate on said plate cylinder;

a support pivot upstanding from said bottom of said axial groove and engaged with a first end of said first plate clamping device angularly moving a second end of said first plate clamping device circumferentially of said plate cylinder about said support pivot;

a first threaded member threaded on said first plate clamping device, in a location remote from said support pivot, for engaging said side of said axial groove and angularly moving said second end of said first plate clamping device circumferentially with respect to said cylinder plate;

a second threaded member threaded on said second plate clamping device for positioning said second plate clamping device axially with respect to said plate cylinder; and

graduations on each of said first and second threaded members for indicating an angular position thereof

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[illegible]
PRINTER FOR A BAR CODE

Leif Persson, Lund, Sweden, assignor to Ecupan AB, Västra [illegible], Sweden

Filed Jul. 23, 1986, Ser. No. 889,324

Claims priority, application Sweden, Jul. 25, 1985, 8503590

Int. Cl.⁴ B41F *1/08*

U.S. Cl. 101—288 **4 Claims**

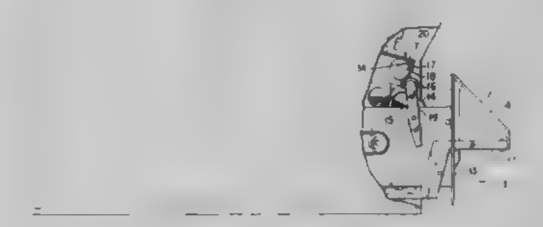
1. In a printer for printing on label paper, the printer having a supply of label paper having labels separably mounted on a ground paper, a printing head with a printing plate movable for printing on the label paper, and label-paper feeding means for feeding the label paper from the supply thereof past the printing head for the printing thereof, the improvement for three printing modes comprising:

a winding drawer movable into and outwardly of the printer, an edge of the winding drawer being positioned close to the printer when the winding drawer is moved fully into the printer and spaced sufficiently from the printer for passing out of the printer the label paper which has been fed past the printing head of the printer for printing on the labels thereof;

a winding roller rotatably supported in the winding drawer for winding thereabout at least the ground paper of the printed label paper;

a dispensing edge in the printer for engaging the printed label paper before the winding drawer; and

an operation lever pivotedly mounted on the winding drawer for movement to a first and a second position and having a deflection roller on one end, the deflection roller being cooperatively positioned with respect to the dispensing edge when the operation lever has been moved into the first position and the winding drawer has been moved into the printer for separating the ground paper of the label paper from the labels thereof and directing the ground paper to the winding roller for winding thereabout and also directing the printed labels across the dispensing edge to the space between the one edge of the winding drawer and the printer for passing out of the printer, whereby, in a first printing mode, only printed labels are dispensed, and the deflection roller not being cooperatively positioned with respect to the dispensing edge when the operation lever has been moved into the second position and the winding drawer has been moved outwardly of the printer for leaving the labels on the ground paper of the label paper, whereby, in a second printing mode, the label paper including the printed labels is wound onto the winding roller and, regardless of the position of the winding drawer, in a third printing mode, said label paper together with said printed label retained thereon being dispensed as a strip from said printer without being wound onto the winding roller



4,759,289
BEARING FOR INK TRANSFER ROLLERS

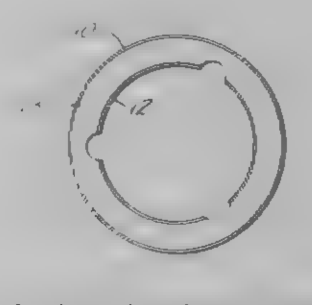
Joel Marcus, 68-61 Yellowstone Blvd., Forest Hills, N.Y. 11375

Filed Nov. 21, 1983, Ser. No. 553,536

Int. Cl.⁴ B41F *1/46*

U.S. Cl. 101—348 **3 Claims**

1. In a printing press having at least one ink transfer roller, said roller being mounted upon a shaft journaled between a pair of bearings for simultaneous rotational movement about a longitudinal axis of said shaft and reciprocating movement parallel to said shaft axis, said ink transfer roller during operation continuously depositing a quantity of waste printing ink upon said shaft in the area of said bearings which under said reciprocating movement migrates to said bearing, the improvement comprising: said bearing being formed of a hydrophobic synthetic resinous material and including at least one longitudinally extending groove communicating with a shaft bearing surface thereof for reception and conduction of said waste ink through said bearing to exit laterally outwardly therefrom; said groove being longitudinally bounded by a pair of edges which lie in the curved plane of said shaft bearing surface, at least one of said edges performing a wiping function upon the surface of said shaft disposed within said bearing, depending upon the direction of rotation of said shaft.



4,759,290
DEVICE FOR CONTROLLING GRIPPERS IN SHEET-FED ROTARY PRESSES

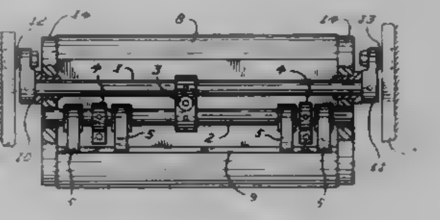
Roland Höll, Weiterstadt, and Dietrich Dettinger, Heusenstamm, both of Fed. Rep. of Germany, assignors to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 10, 1986, Ser. No. 838,159

Claims priority, application Fed. Rep. of Germany, Mar. 12, [illegible]

Int. Cl.⁴ B41F *1/30*

U.S. Cl. 101—415.1 **1 Claim**



1. A device for controlling the opening of a plurality of sheet grippers in a sheet-fed rotary press wherein the grippers are arranged in a row on a gripper shaft disposed on a rotating cylinder, the gripper opening being controlled via the gripper shaft, an actuating shaft, a drive lever carrying a cam follower and a cam control system and the device comprising means for adjusting the opening width of the grippers, characterized in that said gripper shaft is tubular and is disposed concentrically on the actuating shaft, said gripper shaft is controlled centrally between its ends by means of two cam control systems acting in parallel relationship on the ends of the actuating shaft to turn the latter and by a central adjusting means having one arm connected to the actuating shaft and another arm connected to the gripper shaft interconnecting the actuating shaft and the gripper shaft to provide a symmetrically divided torsional force on the gripper shaft adjustable to vary the opening of the gripper according to the sheet thickness being processed

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4,759,291
THROUGH BULKHEAD EXPLOSIVE INITIATOR FOR OIL WELL USAGE

James M. Barker, Katy; Larry L. Grigar, East Bernard, and Dennis E. Schramek, Houston, all of Tex., assignors to Halliburton Company, Duncan, Okla.

Filed Jul. 6, 1987, Ser. No. 69,741

Int. Cl.⁴ F42C *19/12;* **F42B** *19/08;* **F42D** *1/04*

U.S. Cl. 102—202.5 **9 Claims**

1. An explosive initiator for well borehole use in high temperature and pressure wells where explosive train components come into direct contact with well borehole fluid, comprising:

(a) a generally elongated cylindrically shaped housing member having a bore therethrough, and having an upper end and a lower end, said bore having a shoulder in the lower end of said housing member;

(b) an electrical conductor feedthrough connector entering said bore at said upper end of said housing member cooperative with a hermetic seal therebetween;

(c) an explosive initiator in said bore above said shoulder and electrically coupled to said electrical conductor feedthrough;

(d) sleeve means, being generally cylindrically shaped and having a bulkhead at the upper end thereof, said bulkhead on its upper surface being provided with a recessed portion for receiving a pressed pellet of secondary explosive sized therefor, said secondary explosive pellet functioning as a booster load for propagating a shock wave initiated by said explosive initiator across said bulkhead and into the portion of said sleeve means below said bulkhead, thereby enhancing the propagation of the detonation initiated by said explosive initiator into the portion of said sleeve means below said bulkhead, said sleeve means being sized to enter said housing member from its lower end and to abut said shoulder from below, and said sleeve means being sized for receiving a length of detonating cord at its lower end and being adapted for affixation thereto;

(e) retaining means for fixedly retaining said sleeve means in said bore of said housing member; and

(f) means for fluid tight sealing said retaining means to said housing member at its lower end, such that said housing member is sealingly connected to said electrical conductor feedthrough at one end thereof and said detonating cord at the opposite end thereof

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4,759,292
SPIN STABILIZED PROJECTILE

Wolfgang Meffert, and Karl-Heinz Silligmann, both of Düsseldorf, Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Düsseldorf, Fed. Rep. of Germany

PCT No. PCT/EP86/00155, § 371 Date Jan. 2, 1987, § 102(e) Date Jan. 2, 1987, PCT Pub. No. WO86/06829, PCT Pub. Date Nov. 20, 1986

PCT Filed Mar. 18, 1986, Ser. No. 5,195

Claims priority, application Fed. Rep. of Germany, May 4, 1985, 3516102

Int. Cl.⁴ F42B *13/12*

U.S. Cl. 102—499 **6 Claims**

1. A spin stabilized payload projectile, comprising: a projectile body having a nose portion; a projectile base separately connected to the projectile body; payloads disposed for ejection in the projectile body; a nose fuze mounted in the nose portion; an ejection charge activated by the nose fuze; and a

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pressure reducing element disposed between the ejection charge and the nose fuze, said pressure reducing element having the shape of a cone or a cone frustum whose base face faces the nose fuze and whose tip faces the ejection charge

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4,759,293

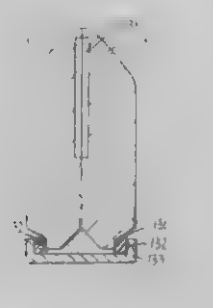
ARTICLE USING SHAPE-MEMORY ALLOY TO IMPROVE AND/OR CONTROL THE SPEED OF RECOVERY

Thomas O. Davis, Jr., 1950 Camino Redondo, Los Alamos, N. Mex. 87544

Continuation-in-part of Ser. No. 880,022, Jun. 30, 1986, Pat. No. 4,704,968. This application Jun. 17, 1987, Ser. No. 58,886

Int. Cl.⁴ F42B *13/16*

U.S. Cl. 102—520 1 Claim



1. A sabot comprising:

a plurality of body sections, said sections forming a cylinder having first and second ends, said sections pivotal with respect to each other at said first end of said cylinder in order to move the sections radially away from each other at said second end of the cylinder;

a ring of shape-memory alloy surrounding said sections near said first end of said cylinder, said shape-memory alloy having a martensitic state and an austenitic state, said ring being dimensionally deformed and radially expanded to surround said sections while said shape-memory alloy is in its martensitic state, a change from its martensitic state to its austenitic state recovering said ring to its non-deformed dimension due to the shape-memory effect exhibited by said alloy to pivot and to separate said sections;

thermal enhancement means in operative thermal contact with said ring, said thermal enhancement means comprising a material containing voids, collapse of said voids generating heat; and

a pusher-plate in contact with said thermal enhancement means, said pusher-plate movable upon acceleration of the sabot, enabling said pusher-plate to crush the thermal enhancement means causing recovery of the ring and separation of the sections.

4,759,294

RAILROAD CAR WITH DOUBLE STACK CONTAINER RESTRAINT SYSTEM

James J. Schuller, Crete, Ill., and John A. Ritter, Cincinnati, Ohio, assignors to Thrall Car Manufacturing Company, Chicago Heights, Ill.

Filed Jul. 17, 1987, Ser. No. 74,622

Int. Cl.⁴ B61D *3/20;* **B61B** *45/00*

U.S. Cl. 105—355 8 Claims

1. A railroad car for transporting horizontal double stacked shipping containers capable of supporting top containers of at least two different lengths against longitudinal and lateral movement comprising:

first and second railroad trucks supporting opposite ends of a railroad car body;

the car body having means which supports one or more horizontal longitudinally positioned lower containers;

each end of the car body having a vertically projecting bulkhead structure which includes a lateral bulkhead end wall extending the width of the car body and a pair of opposing relatively short bulkhead side walls extending longitudinally inwardly from the bulkhead end wall along the sides of the car body;

each bulkhead side wall of a pair of such walls having a container restraining member mounted on an axle for rotation about a substantially vertical axis from a stored position where it does not reduce the clearance between opposing bulkhead side walls to an operating position where it at least projects laterally inwardly of the bulkhead wall to be positioned adjacent a vertical end corner of a top container;

a rotatable shaft means extending laterally across the car body and having a handle at each end for manual rotation of the shaft means from about track grade; and

drive means interconnecting the shaft means and a container restraining member on each bulkhead side wall whereby rotation of the shaft means in one direction causes the restraining members to rotate in opposite directions from stored to operating position and rotation of the shaft means in the opposite direction causes the restraining members to rotate in opposite directions from operating to stored position

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4,759,295

FREIGHT PALLET

Morten N. Nilsen, Fuglemosevej 5, DK-2970 Horsholm, Denmark, and Tor N. Nilsen, Ostrevei 25, N-3150 Tolvsrod, Norway

Continuation-in-part of Ser. No. 491,330, Apr. 19, 1983, abandoned. This application May 21, 1985, Ser. No. 736,964

Claims priority, application Norway, Aug. 21, 1981, 812840

Int. Cl.⁴ B65D *19/34*

U.S. Cl. 108—51.3 2 Claims

1. A freight pallet comprising a support plate of sheet-formed soft material, preferably a porous wood fibre plate reinforced with an adhered foil of a high tensile strength easily flexible material, said plate having substantially parallel first and second legs formed on the underside thereof and being integral with the support plate, said legs being produced by forming a plurality of parallel, V-shaped grooves in one side of said plate and at opposite end sections thereof with the bottoms of the grooves being adjacent the foil on the opposite side of the plate, and bending all strip portions of plate material formed between said grooves back from the plane of the plate, at least four grooves being formed in each end section on said one side of the plate and all said strip portions between the grooves being bent back in the same direction so that the fourth strip counting outwardly from the center of the plate is thereby disposed with its upper surface in contact against the underside of the support plate and is secured thereto, and the plate strip portions between the grooves are bent a greater number of degrees in relation to the adjacent strip than the number of degrees of the angular groove between the same two strip portions so that the plate material is compacted and the foil is tensioned, the sheet-formed material is provided with reinforcing foil on both sides thereof, and the pallet is provided with third leg in the center of the pallet, said third leg being formed by substantially parallel strip portions of the plate, formed between four V-shaped grooves arranged symmetrically around a central axis which extends parallel to said first and second legs, the two grooves which are nearest the central axis of the pallet being formed in the top side of the plate while the two outer grooves are formed in the underside of the plate, all said grooves having an angle greater than 90°, so that the two side walls of the third leg diverge outwardly from the underside of the plate toward a supporting base member of the leg, which extends substantially parallel to the pallet support plate, and the upper surfaces of the pallet support plate are adjacent to each other at an apex of the side walls of the third leg

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4,759,296

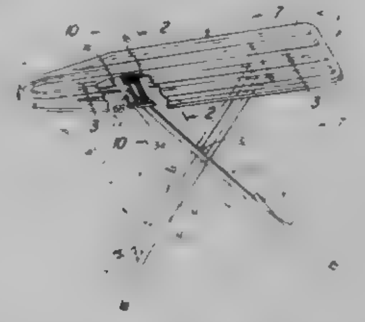
IRONING BOARD

Danny Simpson, Seymour, Ind., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Dec. 22, 1986, Ser. No. 944,957

Int. Cl.⁴ A47B *9/16*

U.S. Cl. 108—120 11 Claims



1. An adjustable ironing table (10), comprising: a top board (12); first and second legs (22,24) moveable between a collapsed position adjacent said top board (12) and an open position extending from said top board (12); an elongated control element (36) connected to said first leg (22) and slideably connected to said board (10); locking means (44) for allowing passive movement of said control element (36) in a direction towards said second leg (24) and locking said control element (36) at a fixed position against movement away from said second leg (24); biasing means (42) for biasing said locking means (44) to engage said control element (36); and characterized by housing means (46) having a vertical wall (48) extending perpendicularly relative to said top board (12) and including a distal end relative to said top board (12) and a horizontal wall (50) parallel relative to and spaced from said top board (12) and extending from said distal end of said vertical wall (48) towards said first leg (22), said vertical wall (49) including guide means (52) for guiding said control element (36) through said housing means (46), said horizontal wall (50) including a slot (54) and said locking means (44) including an independent plate member (44) including a trapped portion extending through said slot (54) and retained thereby to pivot relative thereto and a free portion (58), said biasing means (42) being retained by said control element (36) between said vertical wall (48) and said plate member (44) and between said horizontal wall (50) and said top board (12) as said biasing means (42) pivots said plate member (44) relative to said slot (54) to engage said control element (36), said vertical wall (48) including an edge proximate to said top board (12) and fixedly connected thereto to form a nondeflectable wall engaged by said biasing means (42), said top board (12) having an undersurface (18), said assembly (10) including a pair of guide rails (74) mounted on said undersurface (18) and said first leg (22) being operatively connected between said guide rails (74) defining a path of movement of said first leg (22), each of said guide rails (74) including a guide track (89) and at least one mounting flange (88), said mounting flange (88) being secured to one of said stretched portion (16), each of said guide rails (74) having outside walls (90) opposite to said tracks (89), said first leg (22) including a first base means (92) connected to said control element (36) and including an axle portion (96) disposed in each of said tracks (89) for passive sliding movement toward said housing member (46) and sliding movement away from said housing members (46) when said release means (34) releases said plate member (44) from engagement with said control element, said first base means (92) including four point containment means for engaging said guide rails (74) within each of said tracks (89) and against each of said outside walls (90) when said legs (22,24) are in said collapsed position

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4,759,297

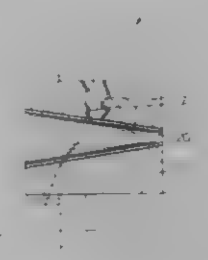
FURNACE BURNER BLOCK

Thomas A. McNally, Downingtown, Pa., and Susan E. Straelec, Worcester, Mass., assignors to Norton Company, Worcester, Mass.

Filed Aug. 27, 1987, Ser. No. 90,074

Int. Cl.⁴ F23L *5/00*

U.S. Cl. 110—182.5 20 Claims



1. In a process comprising maintaining combustion within a furnace containing a burner block having a cavity extending therethrough, said process including variations from time to time in the temperature of said burner block, the improvement wherein the part of said burner block defining the wall of said cavity is composed of a practically thermal shock resistant (PTSR) ceramic material and the outer part of said burner block is made of a refractory material

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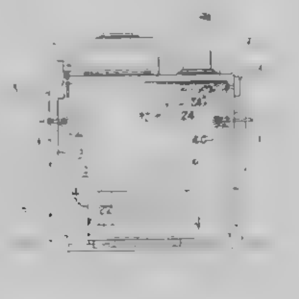
4,759,298

SMOKELESS PYROLYSIS FURNACE WITH SINGLE THERMOCOUPLE, AND RAMP AND SOAK TEMPERATURE CONTROL SYSTEM

Robert A. Koptis, 15963 Remora Blvd., Brookpark, Ohio 44142, and Robert F. Herm, 1842 Donna Dr., Westlak, Ohio 44145
Filed Mar. 16, 1987, Ser. No. 25,889
Int. Cl.⁴ F23N *5/02*
U.S. Cl. 110—190 **6 Claims**



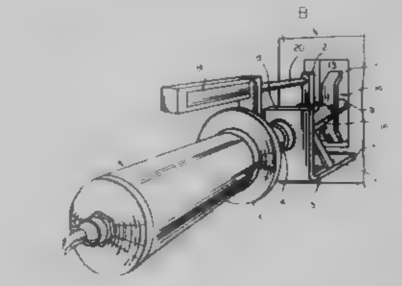
1. In a pyrolysis furnace having
a main chamber,
a main gas burner to directly heat air ducted into said chamber,
a throat near the top of the main chamber through which throat organic vapor volatilized by pyrolysis of polymer-bonded metal parts, leaves the main chamber, said throat having an area, and said main chamber having a volume which are related such that their ratio is always greater than the critical vent number 0.003/ft,
an afterburner chamber provided with an afterburner to incinerate said organic vapor downstream of the throat, and,
an exhaust stack through which incinerated vapor is vented, the improvement comprising,
a single temperature sensing means ("zone TC"), located within a critical sensitive zone in the main chamber, near the top thereof, and within about 1 foot of the upper edge of the throat but outside the throat, to sense the ambient temperature of gases above the metal parts within the main chamber;
programmable controller (PC) means including a temperature control means operatively connected to said zone TC to provide a predetermined temperature profile as a function of time and an instantaneous critical temperature, at any time within a burn cycle; and,
water spray means responsive only to said zone TC and PC when the zone temperature exceeds said predetermined instantaneous critical temperature in the range from about 600°-1100° F., so that water is sprayed into the main chamber above said metal parts to lower said zone temperature below said required temperature;
whereby said incinerated vapor leaving said exhaust stack is permeable to light in the visible wavelength range.

4,759,299

DESLAGGER FOR INSTRUMENT EQUIPPED BOILER PORT

Jesse R. Kennedy, 5217 S. Marietta Dr., and Marcus R. Kennedy, Rte. 3, Box 94, both of Mobile, Ala. 36618
Filed Oct. 27, 1987, Ser. No. 113,000
Int. Cl.⁴ F23N *5/24*
U.S. Cl. 110—193 **11 Claims**

1. An instrument assembly mounted adjacent a port in the wall of a furnace, said assembly including a recording device having a wallbox extending toward said furnace wall, a probe member extending from said wallbox and through the furnace wall port, the improvement comprising;
deslagger means mounted upon said instrument assembly and including a support member engaging said wallbox,
a blade element attached to said support member,
displacement means mounted upon said assembly operable to displace said support member and blade element in a rectilinear manner within said port to remove slag built up within said port adjacent said probe member



4,759,300

METHOD AND APPARATUS FOR THE PYROLYSIS OF WASTE PRODUCTS

Andrew H. Hansen, Van Nuys; William C. Walker, Buena Park, and Richard K. Walker, Pinole, all of Calif., assignors to Balboa Pacific Corporation, Sante Fe Springs, Calif.
Filed Oct. 22, 1987, Ser. No. 111,430
Int. Cl.⁴ F23G *5/12*
U.S. Cl. 110—229 **10 Claims**

1. A pyrolytic converter for pyrolyzing waste material comprising:
(a) an elongated first housing having a waste inlet and a waste outlet;
(b) at least one waste carrying conduit extending longitudinally of said first housing, said conduit having a first end in communication with said waste inlet of said first housing and a second end in communication with said waste outlet;
(c) moving means for moving waste longitudinally of said waste carrying conduit;
(d) microwave generator means carried by said first housing for treating and dehydrating with microwaves the waste material carried within said waste carrying conduit;
(e) an elongated, second housing having at least one pipe extending longitudinally thereof, said pipe containing an atmosphere substantially free of oxygen and having an outlet end and outlet end in communication with said waste outlet of said first housing;
(f) conveyor means mounted within said pipe for conveying waste material longitudinally thereof;
(g) a gas burner mounted within said second housing proximate said pipe for pyrolyzing the waste contained within said pipe;
(h) gas recovery means associated with said pipe for recovering gases produced from pyrolysis of the waste and for conveying said gases to said gas burner;

(i) solid material recovery means associated with said outlet of said pipe for recovering solid material therefrom; and
(j) igniter means carried by said second housing for generating a coherent beam of light and directing it toward the waste material contained within said pipe said beam of light being of sufficient intensity to ignite the waste material

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4,759,301

SEED DRILL

Charles J. Thomas, Hillarys, Australia, assignor to John [illegible] Thomas, Geraldton, Australia
Filed Jul. 2, 1985, Ser. No. 751,188
Claims priority, application Australia, Jul. 4, 1984, PG5850
Int. Cl.⁴ A01C *5/06*
U.S. Cl. 111—85 **7 Claims**

1. A seed drill, comprising: a mounting arm; a tyne, a pivotal connection means for pivotally connecting said tyne to said mounting arm for both angular movement about a substantially horizontal axis transverse to the direction of travel and for tilting movement relative to said horizontal axis about a longitudinally extending axis that is substantially perpendicular to said horizontal axis; a soil engaging tool secured to said tyne at the lower end thereof for forming furrow in the soil; a seeding boot secured rearwardly of said tool for discharging seed into the furrowed soil; said pivotal connection means comprising first spring biasing means interposed between said mounting arm and said tyne for urging said tool into engagement with the soil, said first spring biasing means including adjustment means for controlling the depth at which seeds are planted in the soil, said first spring biasing means exerting a force on said tyne which will counteract the resistive force on said tool as said tool traverses soil having different ground levels so as to provide a substantially constant planting depth, and second spring biasing means yieldably urging said tool into a normally upright position, said second spring biasing means being yieldable to permit said tyne to deflect and pivot about said longitudinally extending axis to allow said tool to pass around the surface of an obstruction as it furrows the soil

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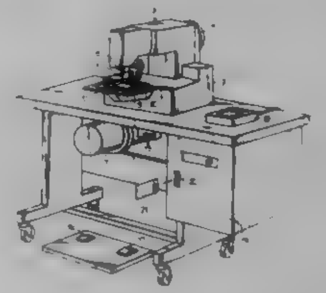
4,759,302

SEWING MACHINE

Toshiaki Yanagi, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Nov. 10, 1986, Ser. No. 929,046
Claims priority, application Japan, Nov. 20, 1985, 60-179227[U]
Int. Cl.⁴ D05B *21/00*
U.S. Cl. 112—121.12 **6 Claims**

1. In a sewing machine having:
stitch forming means including a needle adapted to reciprocate with respect to a material on a material supporting surface;
first driving means for driving said stitch forming means;
material holding means for holding the material on the material supporting surface;
second driving means for causing relative movement between said stitch forming means and material holding means;
storage means for storing necessary sewing data;
control means for controlling said first driving means and said second driving means in accordance with said sewing



data stored in said storage means; the improvement wherein said storage means consists of an IC card which comprises a thin plastic card, an integrated circuit read-write memory for said sewing data and a battery embedded in said thin plastic card, said battery maintaining data in said memory, and further comprising means for detachably connecting said card to said control means from externally of said sewing machine through a card inserting slot of a control box of said sewing machine

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4,759,303

PRESSER FOOT LUBRICATION SYSTEM

Jack S. Belsinger, 1208 Marietta Ave., Lancaster, Pa. 17603, and John C. Smith, R.D. #3, Box 527, York, Pa. 17402
Filed Dec. 14, 1987, Ser. No. 132,026
Int. Cl.⁴ D05B *71/00, 29/12*
U.S. Cl. 112—256 **1 Claim**

1. In combination with a sewing machine having a stitching needle (15), at least one presser foot (10) and a feeder mechanism (20)
said presser foot (10) having a substantially flat middle section (11) and an upwardly curved front section (12),
wherein said upwardly curved front section (12) has an underside (14) formed therein,
means for lubricating the underside (14) of said presser foot comprising a tube element (40) secured directly to said presser foot front section (12),
lubricant resevoir means whereby a lubricating flow therefrom passes directly to the underside (14) of said presser foot (10),
wherein said tube element (40) is comprised of metal and a lower end thereof is secured directly to said presser foot front section (12) by welding, brazing or soldering (45).

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wherein the lower end of said tube element (40) is secured to said presser foot (12) such that it lies flush with the underside (14) of the upwardly curved front section (12) (10),
wherein said tube element (40) has an upper end and wherein a second tube element (50) is attached to said upper end of said tube element (40),
wherein said second tube element (50) is comprised of flexible material to accommodate the upward and downward motion of the presser foot (10),
wherein said second tube element (50) has variable flow valve means (52) therein to control the flow of lubricating fluid to the underside (14) of said presser foot,
wherein said second tube element (50) has shut-off valve means (51) associated therewith so that a selected flow rate position in said variable flow valve means (52) may be retained for subsequent use while stopping the flow of lubricant,
wherein said second tube element (50) has an upper end to which is attached the lubricant reservoir (60),
wherein said lubricant reservoir (60) has handle means (61) formed thereon to provide mounting onto any suitable support (70),
wherein said tube element (40) is relatively short in length whereby said second tube element (50) may be disconnected therefrom and wherein said presser foot (10) may continue to perform its intended function as part of a sewing machine

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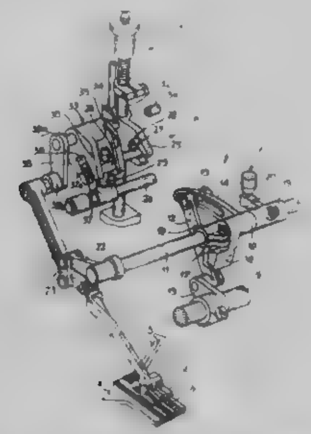
4,759,304
DEVICE FOR CONTROL AND REGULATION OF UPPER FEED MECHANISM OF OVERLOCK SEWING MACHINE

Erminio Nava, Milan, and Franco Marchesi, Pavia, both of Italy, assignors to Rockwell-Rimoldi, S.p.A., Italy
Filed Jul. 24, 1987, Ser. No. 77,488
Int. Cl.⁴ D05B *27/00*
U.S. Cl. 112—311 2 Claims



1. In a device for controlling and regulating the upper feed mechanism of an overlock sewing machine, consisting of at least one upper feed dog which moves in an oscillating manner above a needle plate by the cooperation of a vertical motion mechanism and a horizontal motion mechanism which includes:
a control shaft which turns on its axis;
at least one slide lever which extends from the control shaft,
a slide attached in a movable fashion to the slide lever;
at least one support with a guide seat attached in movable manner to a fixed portion of the slide;
regulators for the support to position the slide along the slide lever;
transmission elements which work with the slide to make the upper feed dog oscillate in a horizontal manner, the improvement comprising:
(a) a support shaft attached in a movable fashion to a fixed part of the sewing machine parallel to the control shaft;
(b) a bracket-fit element attached to the support shaft, consisting of a pair of arms placed symmetrically in relation to said slide lever, each with a slide seat in which a pusher is attached from the slide; and
(c) a crank arm with one end fit in the support shaft and one end working with a support of the feed dog in order to make the feed dog oscillate in a horizontal direction

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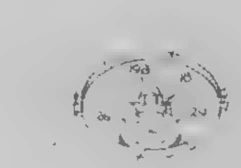
4,759,305
FOIL CONTROL FEEDBACK MECHANISM

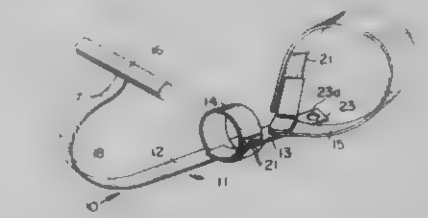
Lawrence E. Lunbeck, 4987 Lamont St., San Diego, Calif. 92109
Continuation of Ser. No. 718,170, Apr. 1, 1985, abandoned, which is a continuation of Ser. No. 432,349, Jul. 8, 1983, abandoned. This application Apr. 1, 1987, Ser. No. 32,934
Int. Cl.⁴ B63H *9/04, 9/10*
U.S. Cl. 114—39.1 17 Claims



1. A device for controlling the position of a foil attached to a load in relation to a wind force acting on said foil comprising:
a gearing system coupled to said foil;
said gearing system producing one (1) degree of rotation of said foil for each two (2) degrees of rotation of the direction of said acting force relative to said foil through an arc of 360 degrees about said foil;
said acting force acting on said foil being the sole force utilized to position said foil;
whereby said foil maintains an effective orientation to said acting force for imparting momentum to said load.

4,759,306
SUPPORTING ASSEMBLIES

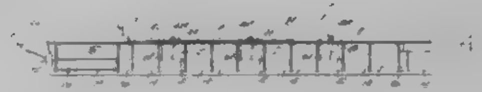
Peter H. H. McKenzie, 123 Jubilee Terrace, Bardon, Q. 4065, [redacted]
Continuation-in-part of Ser. No. 713,906, filed as PCT AU84/00117, filed Jun. 26, 1984, published as WO85/00296 on Jan. 31, 1985, abandoned. This application Nov. 10, 1986, Ser. No. 930,033
Int. Cl.⁴ B63B *35/00*
U.S. Cl. 114—39.2 20 Claims



1. A quick release supporting assembly including:
mounting means securable to a user's arm;
retention means engageable by and controllable by a finger of the user's arm;
flexible connector means extending from said mounting means to said retention means and formed whereby it extends about a bar-like support member spaced beyond the user's grasp;
wherein said connector means is connectable to said support member by maintaining a finger engaged with said retention means such that the user's arm and said connector means cooperate to form a closed loop extending about the support member and wherein said flexible connector means will disconnect from the support member upon release of said retention means from the finger engaged with said retention means.

4,759,307
TANKER BALLAST

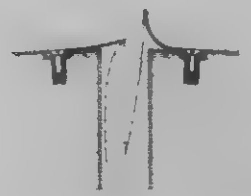
Thomas J. Scott, Wallingford, Pa., assignor to Sun Transport, Inc., Aston, Pa.
Filed Apr. 9, 1987, Ser. No. 36,538
Int. Cl.⁴ B63B *25/08*
U.S. Cl. 114—74 R 2 Claims



1. A tanker vessel having ballast tanks partly filled with heavy ballast material of a higher density than seawater, said heavy ballast occupying about 30 to 50% of the free volume of the ballast tank, said tanks being adapted to be further filled with water above the heavy ballast material to provide a total ballast weight equal to that obtainable with a greater number of tanks filled with water ballast only, thereby increasing the cargo space available in the vessel, said ballast tanks extending above and below the light-ship draft of the vessel and having outlets to the exterior of said vessel positioned above the top of the heavy ballast and above the light-ship draft of the vessel, so that water ballast may be removed by gravity through said outlets.

4,759,308
SEALING LIP ASSEMBLY FOR SURFBOARDS AND SAILBOATS

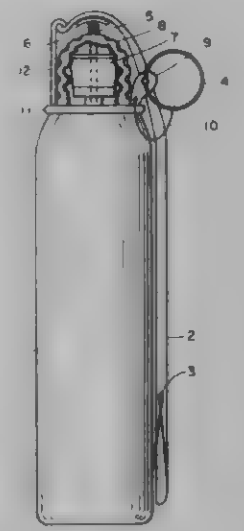
Wolf-Dietrich Zander, Mielkendorf, Fed. Rep. of Germany, assignor to F2 International Gesellschaft m.b.H., Wals, Aus[redacted]
Filed Jul. 16, 1986, Ser. No. 886,162
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1985, 3525491
Int. Cl.⁴ B63B *41/00*
U.S. Cl. 114—127 8 Claims



1. A sealing lip assembly for sealing the underwater side of centerboard or variable keel fin systems on surfboards or sailboats, the centerboard or keel fin system being provided with a case in which a centerboard or keel fin is movably mounted such that, in a retracted position, the centerboard or keel fin is at least partially retracted from the underwater side and, in an extended position, the centerboard or keel fin fully protrudes from the underwater side, which sealing lip assembly comprises:
(a) two resiliently flexible sealing lips for closing an underwater opening of the case in a virtually flow-tight and non-vortical manner in every position of the centerboard or keel fin, the lips riding at least in the extended position of the centerboard or keel fin with a frontward sealing area on a respective surface of the centerboard or keel fin;
(b) the sealing lips being mounted with a rearward mounting area on the surfboard or sailboard adjacent to the underwater opening of the case so that, in the retracted position of at least a portion of the centerboard or keel fin, each sealing lip is slightly biased by a support located on the underwater side of the case; and
(c) each support extending as far as the opening of the case and being interrupted by grooves for conducting water to wash out any contamination which might obstruct the resilient movement of the sealing lips into their closed position.

[redacted]
PASSIVE PERSONAL ALARM DEVICE

Victor C. Zediker, 3226 Apache Rd., Pittsburgh, Pa. 15241
Filed Aug. 17, 1987, Ser. No. 86,304
Int. Cl.⁴ B65D *83/00;* B67D *5/32;* G08B *13/00*
U.S. Cl. 116—67 R 1 Claim



1. A passive (after arming) compressed air, gas, aerosol or pressurized fluid hand carried, personal, self-protection screech alarm device that is armed prior to the time a person utilizing it enters a potentially dangerous area or situation by removing the top mounted, chain held pull pin, or one of the methods described below, and maintaining ones grip on the container and top mounted, side held, spring loaded valve retaining lever, the device comprising: a container of pressurized air, gas fluid or other aerosol substance, said container being a commercially available steel or aluminum vessel, commonly referred to as an aerosol can, and decorated with various safety related colorings; said container being capped by a spring loaded, fly-away plug type valve; said valve being mounted through a sounding device to include a shrill whistle, vibration induced horn, small siren or other noise producing device; said noise producing device being contained in a perforated metal protective cap to prevent muzzling of the sound or breaking off of the sound producing device; said spring loaded, fly-away plug type valve being kept in place until use by a spring loaded, fly-away, top mounted and side held valve retaining lever; said spring loaded, fly-away top mounted and side held valve retaining lever being kept in place until arming by a top mounted, chain held pull pin, top mounted and side held twist control band, side mounted push and/or slide button or various other lever restraining devices; said arming being accomplished by the removal of the top mounted, chain held pull pin, turning the side held twist control band, pushing or

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sliding the side mounted push and/or slide button or various other lever restraining devices; said lever restraining devices being used to activate said passive personal alarm device prior to the time a person carrying it enters into a potentially dangerous situation or area; said lever restraining devices being capable of being disarmed by reversing said methods of arming should the device not have to be utilized during said potentially dangerous encounter; said device being activated after arming by the person carrying it simply releasing their grip and dropping it to the ground whereby said top mounted, side held valve retaining lever flies up and away from container and is released from the device; whereby spring loaded, fly-away, plug type valve is released and separates from the device allowing the pressurized air, gas, fluid or other aerosol substance to excite the shrill whistle, vibration induced horn, small siren or other noise producing device resulting in a shrill noise meant to be heard at a great distance and to alarm, confuse, disorient and frighten away the potential attacker

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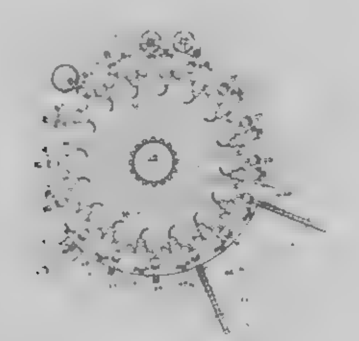
4,759,310
AUTOMATED SYSTEM FOR RECONDITIONING ELECTRICAL TERMINALS

Lee C. Williams, San Marcos, and Richard B. McGee, San Diego, both of Calif., assignors to M/A-COM Government Systems, Inc., San Diego, Calif.

Filed May 19, 1986, Ser. No. 864,494
Int. Cl.⁴ B05C *11/00, 3/10, 13/02*
U.S. Cl. 118—681 10 Claims



1. A system for reconditioning electrical terminals of an electrical work piece, comprising
a carrousel;
means for rotating the carrousel;
means for controlling the rotation of the carrousel so that the carrousel stops upon rotating each 360/n degrees (wherein "n" is an integer greater than three), dwells, and then resumes said rotation;
"n" work piece holding assemblies respectively uniformly disposed on the carrousel about and extending over the periphery of the carrousel for holding work pieces over work stations positioned adjacent and around the periphery of the carrousel beneath the positions occupied by said extensions of the holding assemblies when the carrousel stops and dwells;
a first work piece feed mechanism located at a sequentially first work station for feeding a work piece to the holding assembly positioned over the first work station when the carrousel is dwelling;
a flux bath located at a sequentially second work station for bathing a work piece held by the holding assembly positioned over the second work station when the carrousel is dwelling;
a solder well located at a sequentially third work station for reconditioning the electrical terminal(s) of a work piece held by the holding assembly positioned over the third work station when the carrousel is dwelling; and
a second work piece feed mechanism located at a sequentially fourth work station for feeding a work piece from the holding assembly positioned over the fourth work station when the carrousel is dwelling;
wherein each holding assembly comprises a vacuum tip and means for creating a vacuum at the vacuum tip for holding a work piece contacting the vacuum tip.

4,759,311
CHILD SAFETY RESTRAINING DEVICE

Michael A. Boyle, 5922 Amberdale Dr., Yorba Linda, Calif. 92686

Filed Jun. 23, 1986, Ser. No. 877,476
Int. Cl.⁴ A01K *27/00*
U.S. Cl. 119—96 3 Claims

1. A child safety restraining device which comprises:
a one piece continuous non-stretchable elongated webbing having ends;
said elongated webbing having an adult first buckle means located proximal to one end thereof and a child first buckle means located proximal to the other end thereof, and further including an adult second buckle means located on said webbing between said ends of said webbing in a position spaced from said adult first buckle means so as to define an adult waist strap located between said adult first buckle means and said adult second buckle means, together said adult first and said adult second buckle means comprising a releasable safety buckle;
said elongated webbing further including a child second buckle means located on said webbing in a position spaced from said child first buckle means between said child first buckle means and said adult second buckle means to define a child waist strap means located between said child first buckle means and said child second buckle means, together said child first and second buckle means comprising a further releasable safety buckle.

4,759,312
FURNACE SYSTEM

Georg Pletzer, Rosenhügel 48, A-6353 Going, Austria
PCT No. PCT/AT86/00045, § 371 Date Feb. 4, 1987, § 102(e) Date Feb. 4, 1987, PCT Pub. No. WO86/07435, PCT Pub. Date Dec. 18, 1986

PCT Filed Jun. 4, 1986, Ser. No. 23,860
Claims priority, application Austria, Jun. 12, 1985, 1746/85
Int. Cl.⁴ F22B *31/00*
U.S. Cl. 122—24 33 Claims

1. A furnace system for an installation that has a heat exchanger, preferably water filled, comprising:
at least one combustion chamber for the pulse combustion of free flowing fuels, which is provided with an ignition system for the initial ignition of the fuel and makes a transition to a waste-gas disposal system;
a pre-chamber having a transitional area into the combustion chamber;
a supply line for a preferably continuous supply of fuel under pressure, which ends in an injection nozzle arranged in said pre-chamber;
a supply line for air which has at the inlet into said pre-chamber a non-return valve system for the intermittent supply of air;

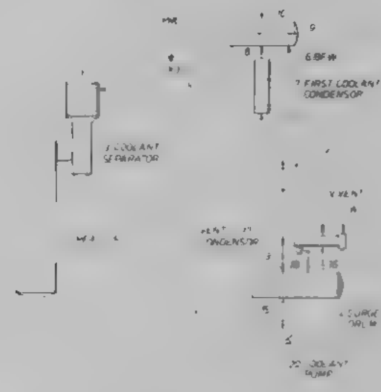
a vortexing element arranged in the transitional area of said pre-chamber, changing the cross-sectional area of the prechamber, and swirling the air-fuel mixture on its combustion chamber side, and;

a control device for the supply of air, by means of which the air passage area between the pre-chamber and the combustion chamber is adjustable to optimize the supply of air in view of the stoichiometric mixture of fuel and air.

4,759,313
ETHYLENE OXIDE PROCESS IMPROVEMENT

Robert F. Dye, Sugar Land, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Oct. 30, 1987, Ser. No. 115,685
Int. Cl.⁴ F22B *1/02*
U.S. Cl. 122—32 8 Claims

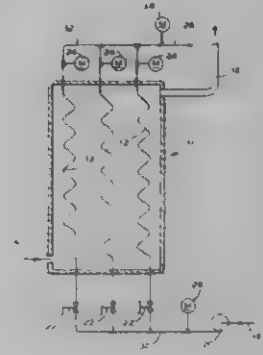


1. A process for the production of ethylene oxide by catalytic oxidation of ethylene with oxygen wherein steam is generated from the heat conveyed by the coolant for cooling the reactor, the improvement which comprises the steps of:
(a) passing the coolant from the reactor to at least one first coolant condenser(s) wherein at least part of the coolant vapor is condensed by exchanging heat with boiler feed water to generate steam thereby producing a vapor-liquid coolant mixture; and
(b) passing said vapor-liquid coolant mixture from said first coolant condenser(s) through a vapor-liquid separator and passing the vapor separated therefrom through at least one second condenser(s) wherein at least part of the vapor is condensed by exchanging heat with boiler feed water to generate steam at a pressure lower than the steam generated by said first coolant condenser(s).

4,759,314
METHOD OF CONTROL OF STEAM QUALITY FROM A STEAM GENERATOR

Anton Banweg, Canal Fulton, and Murray Wiener, Akron, both of Ohio, assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Dec. 14, 1987, Ser. No. 132,100
Int. Cl.⁴ F22D *7/00*
U.S. Cl. 122—406 S 1 Claim

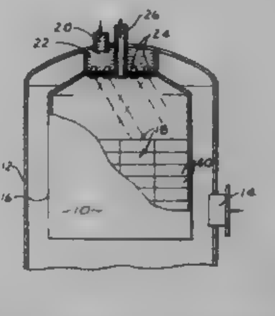


1. A method of control to obtain equal steam quality having liquid and steam phases leaving each parallel tube circuit of a multi-tube once-through, forced circulation steam generating unit utilizing untreated feedwater having high concentrations of dissolved solids comprising:
measuring the electrical conductivity of the water phase of the fluid leaving each parallel tube circuit;
measuring the electrical conductivity of the feedwater entering the steam generating unit;
generating a control signal from the ratio of the water phase conductivity to the feedwater conductivity, and actuating flow control valves in each parallel tube circuit by the control signal to maintain a given, fixed value of the conductivity ratio for each tube circuit.

4,759,315
DEAERATOR TRAY FOR A STEAM BOILER FEEDWATER HEATER SYSTEM

Edward H. Chiou, Overland Park, and Consalvo Sciubba, Jr., Shawnee, both of Kans., assignors to Crane Co., King of Prussia, Pa.

Filed Sep. 2, 1986, Ser. No. 902,577
Int. Cl.⁴ F22D *1/28*
U.S. Cl. 122—442 14 Claims



1. A deaerator tray assembly for countercurrent contact of steam system feedwater with uprising a steam vapor, comprising:
a plurality of horizontally elongated troughs for receiving a quantity of said feedwater to be deaerated,
said troughs each having a spaced pair of upper weir edges,
said troughs being arranged in spaced, side-by-side relation in horizontal tiers,

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said tiers being vertically spaced and staggered from each other; and

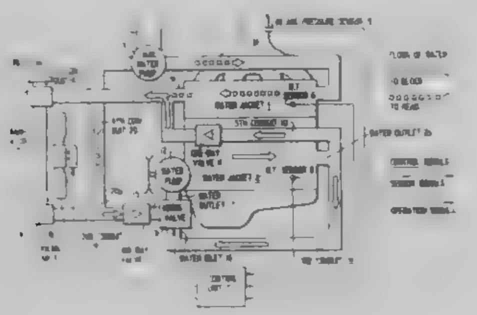
a plurality of flat inclined wall members each one being directly connected to one of said weir edges,

said wall members extending outwardly and downwardly from respective weir edges and terminating in a lower edge,

the vertical projected dimension of said wall members being less than the depth of respective troughs in order to increase the effective area of interactive contact between the uprising steam and the water falling from said wall member lower edge toward said underlying troughs.

4,759,316
COOLING SYSTEM FOR INTERNAL COMBUSTION ENGINES

Masato Itakura, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Jul. 7, 1987, Ser. No. 72,653
Claims priority, application Japan, Jul. 7, 1986, 61-158074
Int. Cl.⁴ F01P *7/16*
U.S. Cl. 123—41.08 4 Claims



1. A cooling system for an internal combustion engine, comprising: a head-side water jacket and a block-side water jacket made independent of each other; and a radiator and a cooling fan shared between said two water jackets,

wherein the improvement comprises:

a first cooling water conduit for connecting the outlet of said head-side water jacket and the inlet of said radiator;

a mixing valve having two water inlets and one water outlet;

a second cooling water conduit for connecting one of the water inlets of said mixing valve and the outlet of said radiator;

a third conduit for connecting the water outlet of said block-side water jacket and the remaining one of the water inlets of said mixing valve;

a water pump connected between the water outlet of said mixing valve and said block-side water jacket for pumping water to said block-side water jacket;

a fourth conduit branched midway from said second conduit and connected with the water inlet of said head-side water jacket;

an auxiliary water pump disposed midway of said fourth conduit for pumping water to said head-side water jacket;

a fifth conduit branched midway from said third conduit and connected with said first conduit;

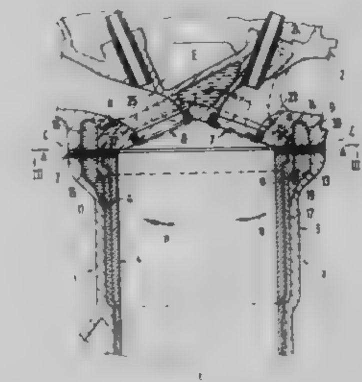
a one-way valve disposed midway of said fifth conduit for allowing the water to flow only from said third conduit to said first conduit;

a one-way valve disposed midway of said second conduit and between the branch point of said fourth conduit and said mixing valve for allowing the water to flow only from said branch point to said mixing valve; and

a control unit for controlling the mixing ratio of said mixing valve, the displacement of said auxiliary water pump and the operation of said cooling fan.

4,759,317
MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

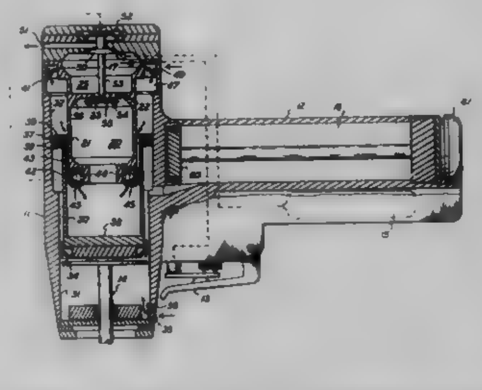
Herbert Ampferer, Sachsenheim, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Weissach, Fed. Rep. of Germany
Filed Feb. 6, 1987, Ser. No. 11,700
Claims priority, application Fed. Rep. of Germany, Feb. 6, [illegible]
Int. Cl.⁴ F01P *3/02;* F02F *1/38*
U.S. Cl. 123—41.74 21 Claims



6. A multi-cylinder internal combustion engine with liquid cooling, comprising cylinder head means, cylinder crankcase means connected with the cylinder head means and including cylinder liner means circumcirculated by cooling medium, the cooling medium for the individual cylinders being conducted transversely to the longitudinal directions of the internal combustion engine to the cylinder head means and past the cylinder liner means of the cylinder crankcase means, the cooling medium flowing from a feed channel means extending in the engine longitudinal direction along one engine lateral side into a discharge channel means extending in the engine longitudinal direction along an opposite engine lateral side.

4,759,318
DIFFERENTIAL PISTON AND VALVING SYSTEM FOR DETONATION DEVICE

Joseph S. Adams, Ganges, Canada, assignor to Joseph Adams Technical Arts Ltd., British Columbia, Canada
Division of Ser. No. 703,821, Feb. 21, 1985, Pat. No. 4,665,868.
This application Nov. 12, 1986, Ser. No. 929,440
Int. Cl.⁴ F01B *71/00*
U.S. Cl. 123—46.5 C 10 Claims



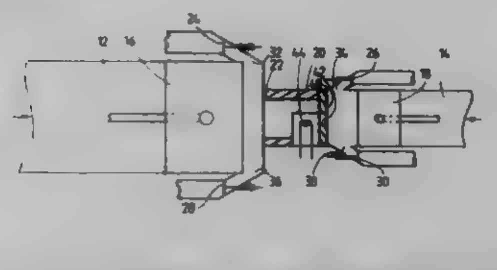
1. A method of producing repeated detonations in a detonation chamber, said method comprising:

a. arranging a movable differential piston in a differential cylinder around a fixed wall of said detonation chamber so as to form a fluid flow passageway between said detonation chamber wall and said piston; and

b. arranging valves to cooperate with said differential piston so that a power stroke of said differential piston draws cooling and purging air into contact with said detonation chamber wall and compresses recharging air and so that a return stroke of said differential piston forces said cooling and purging air through said passageway into said detonation chamber to purge exhaust gas from said detonation chamber and subsequently admits compressed recharging air through said passageway and into said detonation chamber.

4,759,319
INTERNAL COMBUSTION ENGINE

Dan Merritt, Coventry, England, assignor to Coventry City Council, Coventry, England
Continuation of Ser. No. 710,661, Mar. 12, 1985, abandoned.
This application Mar. 11, 1987, Ser. No. 24,453
Claims priority, application United Kingdom, Mar. 10, 1984, [illegible]; Mar. 11, 1985, [illegible]
Int. Cl.⁴ F02B *75/12*
U.S. Cl. 123—51 AA 11 Claims

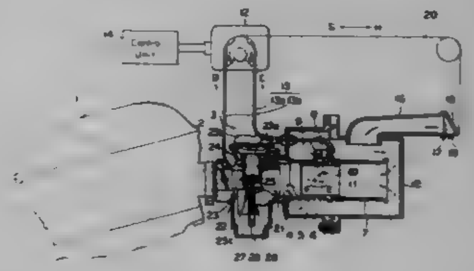


1. An internal combustion engine comprising: at least one pair of first and second cylinders, said cylinders having head ends, said first cylinder having a larger swept volume than said second cylinder; a combustion chamber interconnecting said cylinders at their head ends; respective first and second pistons movable in said first and second cylinders towards and away from said combustion chamber; first means for supplying a charge of substantially air only into said first cylinder during an induction stroke of said first piston; second means for supplying a charge of fuel only in said second cylinder to form a rich fuel/air mixture therein during an induction stroke of said second piston; restricting means only between said second cylinder and said combustion chamber for restricting dispensing of fuel/air mixture from said second cylinder into said combustion chamber until combustion is required and for assisting in mixing of said fuel/air mixture with air in said combustion chamber; ignition means in said combustion chamber, said ignition means comprising catalytic material only partially filling said combustion chamber cross-section to allow the free flow of gases through said combustion chamber between said first cylinder head end and said restricting means and wherein exhaust gases are exhausted from said second chamber through said combustion chamber and through an exhaust port means in said first cylinder.

4,759,320
INTAKE DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Takaaki Fujii; Seishi Miura, both of Niiza, and Takaaki Tsukui, Tokyo, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 3, 1987, Ser. No. 81,133
Claims priority, application Japan, Aug. 6, 1986, 61-185616; [illegible]
Int. Cl.⁴ F02B *75/18*
U.S. Cl. 123—52 M 9 Claims

1. An intake device for an internal combustion engine having a variable intake pipe length mechanism which comprises a stationary intake pipe connected to a carburetor, a guide pipe separated from the stationary intake pipe, and a movable intake pipe movably mounted on the guide pipe so as to be capable of being in contact with or spaced from the stationary intake pipe in response to the engine revolving speed, the movable intake pipe being connected to the stationary intake pipe below a predetermined engine speed and separated from it above the predetermined engine speed; wherein the improvement comprises

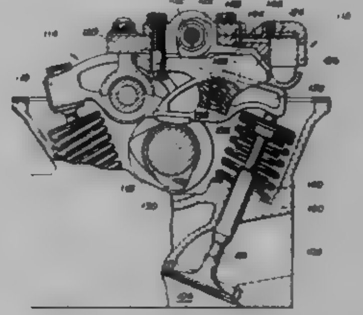


a case enclosing the stationary intake pipe, the movable intake pipe and the guide pipe, and having an intake passage communicating with the atmosphere; and

an air flow resistance adjusting means for varying the air flow resistance into the intake passage in response to the motion of the movable intake pipe.

4,759,321
VALVE TIMING ARRANGEMENT FOR INTERNAL COMBUSTION ENGINE HAVING MULTIPLE INLET VALVES PER CYLINDER

Yasuo Matsumoto, Yokohama; Shunsuke Hara, Yokosuka, and [illegible], Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Jun. 23, 1986, Ser. No. 877,323
Claims priority, application Japan, Jun. 24, 1985, [illegible]; Jun. 28, 1985, [illegible]; Jul. 22, 1985, [illegible]
Int. Cl.⁴ F01L *1/34*
U.S. Cl. 123—90.15 14 Claims



1.

In an internal combustion engine

means defining a combustion chamber;

an exhaust valve which controls communication between said combustion chamber and an exhaust systems;

a first inlet valve which controls communication between said combustion chamber and a first induction passage which is so constructed and arranged as to guide the air which flows therethrough into the combustion chamber in a manner to establish a swirling air pattern therein;

a second inlet valve which controls communication between said combustion chamber and a second induction passage which is so constructed and arranged as to introduce the

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air flowing therein into the combustion chamber in a manner which promotes charging efficiency;
a first variable valve timing arrangement which controls the lift and timing of said second inlet valve;
a control device for controlling said first variable valve timing arrangement in response to a first operational parameter of said engine;
wherein said control arrangement is responsive to a second operational parameter, wherein said first and second operational parameters are the rotational speed of said engine and the load on said engine and which comprises first and second sensors for sensing the magnitude of said first and second operational parameters and producing signals indicative thereof; and
a second variable valve timing arrangement which controls the lift and timing of said first inlet valve, said second variable valve timing arrangement being responsive to said control device

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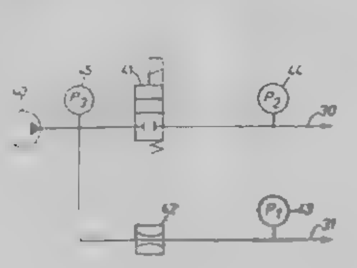
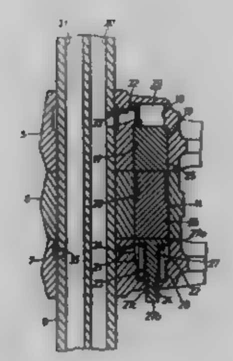
4,759,322
VALVE OPERATING APPARATUS FOR AN INTERNAL COMBUSTION ENGINE

Tsuneo Konno, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 7, 1987, Ser. No. 105,209
Claims priority, application Japan, Oct. 23, 1986, 61-252622
Int. Cl.⁴ F01L *1/24, 1/26, 1/34*
U.S. Cl. 123—90.16 **8 Claims**

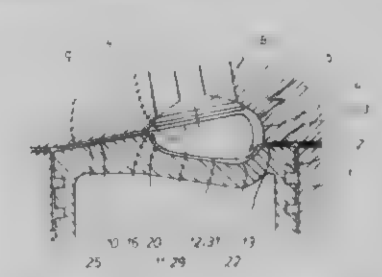




1. Apparatus for operating intake or exhaust valves in an internal combustion engine including a plurality of rocker arms for opening and closing said valves; cam means for driving said rocker arms to impart a mode of operation to said valves; and means for varying the mode of operation of said valves, comprising:
mutually registrable guide holes in said rocker arms;
piston means carried by said rocker arms in said guide holes;
means for selectively moving said piston means between adjacent guide holes for connecting or disconnecting said rocker arms; and
sensing means for determining the positional condition of said piston means.

4,759,323
COMBUSTION ENGINE WITH ONE OR MORE "SQUISH" SPACES BETWEEN THE PISTON AND THE CYLINDER HEAD

Paul August, Barcelona, Spain, assignor to Glotur Trust Reg., Fed. Rep. of Germany
Filed Mar. 17, 1986, Ser. No. 840,633
Claims priority, application Fed. Rep. of Germany, Dec. 20, [illegible]
Int. Cl.⁴ F02F *3/28*
U.S. Cl. 123—193 P **8 Claims**

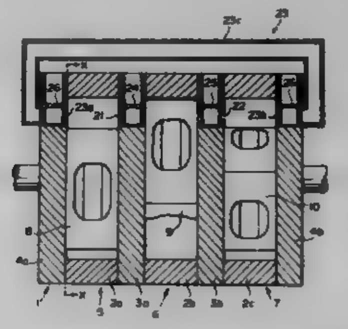


1. A combustion engine with at least one squish space between a piston (2), having a piston head (15), and a cylinder head (5), and guide means (4) (20) within a combustion chamber (8) which create a rotating flow in said combustion chamber (8), wherein an upper wall of said combustion chamber (8) is formed by said cylinder head (5), side walls of said combustion chamber (8) are formed by a cylinder (1), and on at least one side of said piston head (15) a slope (10) is arranged which, together with an opposing slope (9) of said cylinder head (5), forms a first squish space (25) which, close to a top dead-centre position of said piston (2), creates a lateral squish space flow (29) which flows into said combustion chamber (8) parallel to said upper wall of said combustion chamber (8) and forms a rotating flow by action of said guide means (4) (20), characterized in that within an intermediate space (21) of said piston head (15) extending between an intake valve (6) and an exhaust valve (7), at least one further central squish space (26) is arranged which creates a further squish space flow (30) which reinforces said lateral squish space flow (29), said combustion engine further characterized in that said central squish space (26) is formed by a wedge-shaped central guide projection (17) on said piston head (15) and said cylinder head (5), said wedge-shaped central guide projection having a flat upper surface which conforms to said slope of said cylinder head.

4,759,324
INTAKE SYSTEM FOR ROTARY PISTON ENGINE

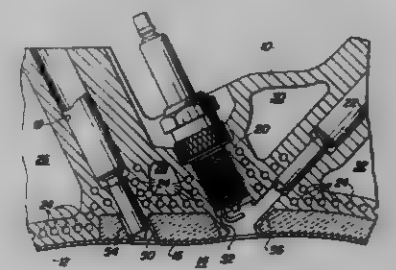
Tatsuya Kita; Hiroshi Sasaki, and Nokuhiro Yamamoto, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan
Filed Dec. 24, 1986, Ser. No. 946,327
Claims priority, application Japan, Dec. 27, 1985, 60-298677; Dec. 27, 1985, 60-298679
Int. Cl.⁴ F02B *53/04*
U.S. Cl. 123—216 **9 Claims**

1. An intake system for three-rotor type rotary piston engine comprising first, second and third engine sections, a casing comprised of first, second and third rotor housings each of which is formed with an inner wall of trochoidal configuration, two intermediate housings respectively located between said first rotor housing and said second rotor housing and between said second rotor housing and said third rotor housing and two side housings respectively attached with said first rotor housing and said third rotor housing, each engine section having a rotor of substantially polygonal configuration planetarily rotatable in sliding contact with the inner wall of said rotor housing therein to define working chambers of cyclically variable volumes, the phase of said rotor of the first engine section being advanced relative to that of the second engine section by 120 degrees in terms of the eccentric shaft rotation angle and the phase of said rotor of the second engine section being advanced relative to that of the third engine section by 120 degrees in terms of the eccentric shaft rotation angle so that the intake stroke takes place in the order of the first, second and third engine section, and intake port means for introducing intake air into each engine section, said intake system comprising:
first communicating passage means for communicating the working chamber in which the compression stroke is proceeding in the first engine section and the working chamber in which the intake stroke is proceeding in the second engine section, second communicating passage means for communicating the working chamber in which the compression stroke is proceeding in the second engine section and the working chamber in which the intake stroke is proceeding in the third engine section, and third communicating passage means for communicating the working chamber in which the compression stroke is proceeding in the third engine section and the working chamber in which the intake stroke is proceeding in the first engine section, each communicating passage means being provided with valve means for controlling the openings thereof in accordance with the engine load wherein said first communicating passage means is formed in the intermediate housing between the first rotor housing and the second rotor housing, wherein the second communicating passage means is formed in the intermediate housing between the second rotor housing and the third rotor housing and wherein said third communicating passage means is formed outside of said casing.



4,759,325
ROTARY ENGINE COOLING SYSTEM

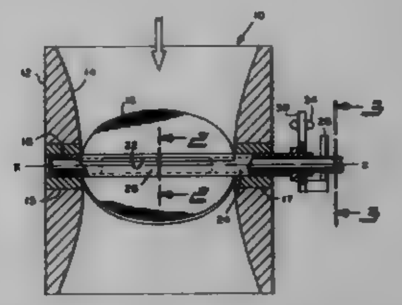
Charles Jones, Hillsdale, N.J., assignor to Deere & Company, Moline, Ill.
Filed Jan. 28, 1987, Ser. No. 7,877
Int. Cl.⁴ F02B *53/00*
U.S. Cl. 123—242 **17 Claims**



1. A rotary internal combustion engine comprising:
a rotor housing forming a trochoidal cavity therein, the housing having a recess formed in a top-dead-center region of the engine and having a housing bore extending therethrough;
an insert of refractory material received in the recess, the insert having an insert bore extending therethrogh and communicating the housing bore with the cavity;
an element of a fuel injection and ignition system extending through the housing and insert bores, the element having an end exposed to the cavity; and
the housing having a plurality of cooling passages extending therethrough, the cooling passages being comprised of drilled holes.

4,759,326
METHOD OF CONTROLLING ENGINE IDLE SPEED AND AIR THROTTLE THEREFOR

Loren H. Uthoff, Jr., Canton, and Walter Wilson, Westland, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio
Filed Jul. 10, 1986, Ser. No. 884,140
Int. Cl.⁴ F02M *3/00*
U.S. Cl. 123—339 **1 Claim**



1. A throttle assembly for controlling the flow in a charge air inlet passage of an internal combustion engine comprising:
(a) a main valve comprising a valve mounted on a shaft disposed for rotation in said charge inlet passage about an axis transverse to the direction of charge air flow, said main valve member having an idle bleed shot formed therethrough, and operable upon rotation to move between an open and closed position in said charge air inlet passage;
(b) idle speed valve means including a sleeve member disposed over said main valve shaft for limited concentric rotation with respect thereto, said idle valve means operable, when said main valve is closed and upon rotation of said sleeve member between predetermined limits, to effect progressive opening and closing of said idle bleed shot for engine idle speed control;
(c) means attached to one of said main valve and said idle flow valve and defining a reaction surface operable upon rotation of said idle flow valve means beyond said predetermined limits to effect progressive opening and closing of said main valve for off-idle engine speed control.

4,759,327
APPARATUS FOR CONTROLLING AN INTERNAL COMBUSTION ENGINE

Masami Nagano, Katsuta; Seiji Suda, Mito; Takeshi Atago, and Masahide Sakamoto, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Sep. 8, 1986, Ser. No. 904,399
Claims priority, application Japan, Sep. 20, 1985, 60-208082
Int. Cl.⁴ F02P *5/15;* **F02D** *41/04*
U.S. Cl. 123—419 **4 Claims**

1. An apparatus for controlling an internal combustion engine, comprising:
ignition means for igniting a combustible mixture in the

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cylinders of the engine in accordance with an ignition signal;
speed detecting means for detecting the number of revolutions per unit time of the engine to produce a speed signal in proportion thereto; and
a control unit, including a processing unit, a read-only memory connected to the processing unit through a bus and in which a program for operating the processing unit is stored, and a random access memory connected to the processing unit through the bus for storing an ignition timing map and a map of compensation amounts for an ignition timing, the processing unit being programmed so as to comprise means for:
sampling the speed signal produced by said speed detecting means and reading an ignition timing signal from the ignition timing map in response to the value of said speed signal at a predetermined sampling period;
detecting a deviation between the number of revolutions detected at a previous sampling period and that sampled in the present sampling period;

discriminating whether or not the obtained deviation exceeds a predetermined value, and outputting the ignition timing signal as the ignition signal to said ignition means when the deviation is less than the predetermined value;
detecting a change in the sign of the deviation after it is determined that the deviation exceeds the predetermined value;
executing a compensation operation for an ignition timing signal read out from the ignition timing map for only a predetermined number of the sampling periods from the time of detection of the change in the sign of the deviation such that a compensation amount read out from the compensation amount map is added to the ignition timing signal, when the number of revolutions changes with a decreasing tendency, and the compensation amount is subtracted from the ignition timing signal, when the number of revolutions changes with an increasing tendency, for said predetermined number of sampling periods; and
producing a compensated ignition timing as the ignition signal to said ignition means.

4,759,328

METHOD AND CIRCUIT ARRANGEMENT FOR DETECTING THE READINESS FOR OPERATION OF AN OXYGEN MEASUREMENT PROBE

Thomas Blümel, Schmitten; Bernhard Lukas, Raunheim; Wolfgang Reisch, Biebergemünd-Bieber, and Eberhard Maurer, Bad Soden, all of Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

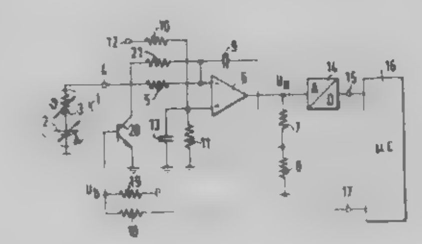
Filed Oct. 9, 1987, Ser. No. 107,570

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1986, 3637029; Dec. 24, 1986, 3644472

Int. Cl.⁴ F02D *41/14*

U.S. Cl. 123—440 **28 Claims**

1. A method for detecting readiness for operation of an oxygen measurement probe located in an exhaust duct of an internal combustion engine, the probe being operative with a regulation device to regulate a fuel-air mixture for the internal combustion engine, the method comprising the steps of
integrating an output voltage of the oxygen measurement probe to provide an integrated output voltage, an integration time constant of the integration being dependent on the internal resistance of the oxygen measurement probe,
measuring a changing speed of the integrated output voltage, and



detecting the readiness for operation above a predetermined value of the changing speed.

4,759,329

THROTTLE VALVE CONTROL APPARATUS FOR AN ENGINE

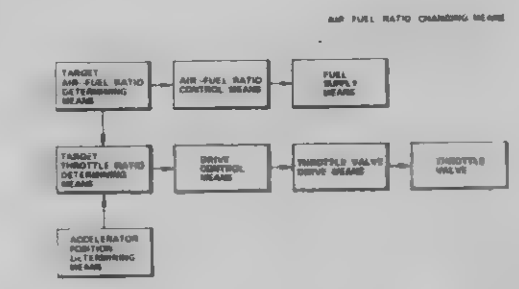
Takeuchi Nobuo; Kaneko Tadashi; Nakazumi Tadataka, and Hotate Makoto, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Jul. 16, 1986, Ser. No. 886,226

Claims priority, application Japan, Jul. 16, 1985, 60-155241

Int. Cl.⁴ F02D *9/02*

U.S. Cl. 123—440 **24 Claims**


AIR FUEL RATIO CHANGING MEANS
TARGET AIR-FUEL RATIO DETERMINING MEANS
AIR-FUEL RATIO CONTROL MEANS
FUEL SUPPLY MEANS
TARGET THROTTLE RATIO DETERMINING MEANS
DRIVE CONTROL MEANS
THROTTLE VALVE DRIVE MEANS
THROTTLE VALVE
ACCELERATOR POSITION DETERMINING MEANS

1. A throttle valve control appartus for an engine, comprising:
air-fuel ratio changing means for changing an air-fuel ratio of a gas mixture supplied to the engine based on a predetermined condition;
a throttle valve arranged in an intake passage of the engine;
throttle valve driving means for driving the throttle valve;
accelerator position detecting means for detecting the opening or position of an accelerator;
target throttle opening determining means for determining a target throttle opening based on a throttle opening characteristic corresponding to the air-fuel ratio of the gas mixture from a plurality of throttle opening characteristic associated so as to allow the throttle opening to be larger with respect to an identical accelerator opening when the air-fuel ratio represents a lean gas mixture than when it represents a rich gas mixture, by receiving outputs from said air-fuel ratio changing means and said accelerator position detecting means; and
drive control means for controlling said throttle valve driving means so as to set an opening of said throttle valve to be the target throttle opening determined by said target throttle opening determining means.

4,759,330

FUEL INJECTION CONTROL APPARATUS FOR USE IN AN ENGINE

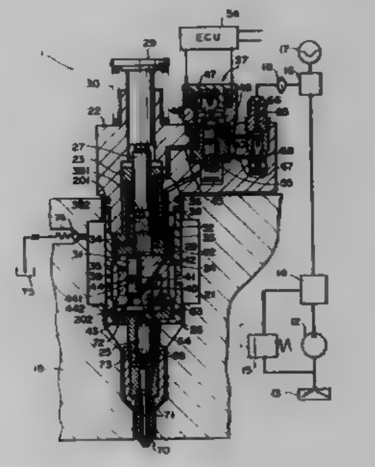
Masaaki Kato; Hiroaki Nishimaki, both of Kariya; Toshihiko Omori, Nagoya, and Hitoshi Sekijima, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 28, 1986, Ser. No. 845,254

Claims priority, application Japan, Mar. 30, 1985, 60-67064

Int. Cl.⁴ F02M *39/00*

U.S. Cl. 123—446 **13 Claims**



1. A fuel injection control apparatus for use in an engine, comprising:
a compression plunger, defining a compression pump chamber and driven in accordance with the rotation of said engine, for expelling fuel filled in said compression pump chamber;
an injection plunger, which defines an injection pump chamber and is driven by the pressure of the fuel expelled from said compression pump chamber, a quantity of fuel determined to correspond with engine conditions being filled in said injection pump chamber;
a fuel injector to which the fuel filled in said injection pump chamber is supplied in accordance with an operation of said injection plunger, and which is opened by the pressure of the fuel to inject the quantity-controlled fuel;
a timing passage which communicates with said compression pump chamber and is closed when said compression plunger is driven;
a delta port which communicates with said compression pump chamber, said delta port being closed by said compression plunger after said timing passage is closed, when said compression plunger is driven, so that an increase of fuel pressure in said compression pump chamber is delayed until after fuel is discharged from the compression pump chamber and the timing passage is closed;
a metering fuel passage which communicates with said injection pump chamber;
an electromagnetic valve consisting of a timing valve and a quantity control valve which are alternately turned on and off by an energization current, said timing valve communicating with said timing passage to control a passage for the fuel expelled from said compression pump chamber, and said quantity control valve communicating with said metering passage;
fuel supply means for supplying the fuel at a given pressure to said quantity control valve of said electromagnetic valve, the fuel at the given pressure being supplied to said injection pump chamber when the pressure in said injection pump chamber is decreased to open said quantity control valve; and
a check valve, which is closed when the fuel pressure in said injection pump chamber is lower than that supplied by said fuel supply means, for inhibiting fuel from being discharged from said injection pump chamber;
control means which closes said timing valve of said electromagnetic valve during movement of said compression plunger so as to set a pressure increase start timing of said compression pump chamber, and controls valve-open time interval of said quantity control valve of said electromagnetic valve when the pressure in said injection pump chamber is decreased during a return movement of said compression plunger, thereby controlling the quantity of fuel filled in said injection pump chamber.

4,759,331

ELECTROMAGNETICALLY ACTUATABLE FUEL-INJECTION VALVE

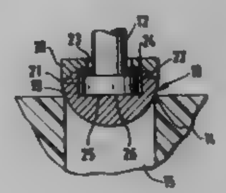
Andreas Sausner, Frankfurt am Main, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 28, 1986, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1985, [illegible]

Int. Cl.⁴ F02B *3/00*

U.S. Cl. 123—472 **13 Claims**



1. An electromagnetically actuatable fuel-injection valve for injection systems of internal-combustion engines, the valve comprising
an electromagnet, an armature, a spring, a valve seat, and a valve needle which is operatively connected at a first end thereof to the spring and the armature; and wherein
the valve further comprises a closure element including connection means, said closure element being connected to the valve needle at a second end thereof opposite said first end by said connection means, said connection means enabling the closure element to be displaceable perpendicularly to an axis of the valve needle;
said closure element is displaceable in a direction transverse to the axis of said needle,
said second end of said valve needle being a ram-shaped end; and
said closure element has the shape of a spherical segment, said connection means having a hollow space for receiving the ram-shaped end of said valve needle,
a surface of the ram-shaped end of said valve needle is flat, and rests on an interior flat surface of the closure element, which interior surface delimits the hollow space; and wherein
both of said flat surfaces are located approximately in a plane of the valve seat when the fuel-injection valve is closed.

4,759,332

AIR-FUEL RATIO CONTROL SYSTEM FOR AUTOMOTIVE ENGINES

Takuro Morozumi, Mitaka, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 4, 1986, Ser. No. 937,967

Claims priority, application Japan, Dec. 11, 1985, 60-280111

Int. Cl.⁴ [illegible]

U.S. Cl. 123—489 **4 Claims**

1. In an air-fuel ratio control system for an automotive engine, the system having an O_2-sensor producing output voltage

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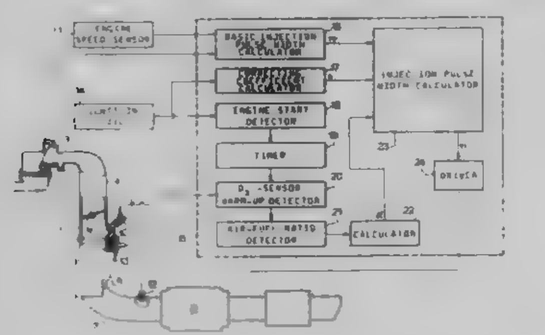
relative to oxygen concentration of exhaust gases of the engine, a feedback control system responsive to the output voltage of the O_2-sensor for controlling air-fuel ratio of mixture supplied to the engine, the improvement comprising:

detecting means for detecting starting of the engine and for producing an engine start signal;

a timer responsive to the engine start signal for producing a first timer signal during a predetermined period of time and for producing a second timer signal after the predetermined period of time;

O_2-sensor warm-up detecting means responsive to the first timer signal for comparing the output voltage of the O_2-sensor with a high level reference voltage and for producing a feedback control start signal when the output voltage of the O_2-sensor exceeds the high level reference voltage, and responsive to the second timer signal for comparing the output voltage of the O_2-sensor with a low level reference voltage which is lower than the high level reference voltage and for producing the feedback control start signal when the output voltage of the O_2-sensor becomes higher than the low level reference voltage;

means responsive to the feedback control start signal for starting operation of the feedback control system.


ENGINE SPEED SENSOR
BASIC INJECTION PULSE WIDTH CALCULATOR
ENGINE START DETECTOR
TIMER
O_2-SENSOR WARM-UP DETECTOR
AIR-FUEL RATIO DETECTOR
INJECTION PULSE WIDTH CALCULATOR
DRIVER
CALCULATION

4,759,333
FUEL CONTROL APPARATUS

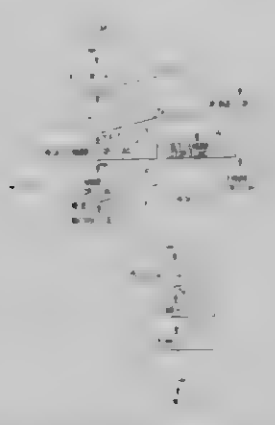
Setsuhiro Shimomura, and Yasuo Tada, both of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 17, 1987, Ser. No. 39,163

Claims priority, application Japan, Apr. 22, 1986, 61-95132; Apr. 29, 1986, 61-100053

Int. Cl.⁴ F02D *41/18*

U.S. Cl. 123—494 5 Claims



1. A fuel control apparatus which comprises a fuel supplying means for supplying fuel to an internal combustion engine depending on the operation of a fuel control valve, a hot-wire type intake air quantity sensor disposed in an air-intake passage for said internal combustion engine to detect the quantity of air passing therethrough, means for heating a hot wire at a temperature higher than a temperature in the normal operation so as to burn off a deposit on said hot wire by detecting the output of said sensor indicating that suction of air to said engine is stopped, after said engine has been stopped.

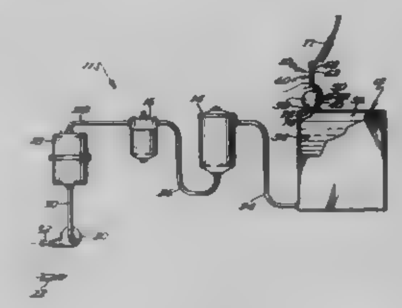
4,759,334
METHOD AND DEVICE FOR FEEDING FUEL IN A FUEL SYSTEM

Edwin Williamson, 6800 West Old Shakopee Rd., Bloomington, Minn. 55437

Filed Aug. 19, 1987, Ser. No. 86,799

Int. Cl.⁴ F02M *39/00;* **F04F** *10/00*

U.S. Cl. 123—510 19 Claims



1. Device for feeding fuel in a fuel system for a liquid fuel engine, with the fuel system having a fuel tank, fuel lines, multiple microscreen fuel filters, a fuel pump, and engine fuel injectors, with the fuel tank having a fill opening having a perimeter, comprising, in combination: a ball having a size for overfitting and abutting with the perimeter of the fill opening of differing sizes, shapes, and constructions; and means for introducing air pressure greater than atmospheric through the ball and through the fill opening and into the fuel tank, with the ball having a solid cross section and being generally impermeable to air passage, with the ball being deformable to conform to the perimeter of the fill opening for sealingly engaging the perimeter of the fill opening and having a firmness for transmitting a force applied to the ball in the direction of the fill opening into a sealing force applied by the ball to the fill opening to balance opposing forces created by the introduction of air pressure into the fuel tank and for increasing the air pressure in the fuel tank acting on the fuel to increase the rate of fuel flow from the fuel tank into the fuel line for assisting the fuel pump in moving the fuel from the fuel tank through the fuel lines and through the microscreen filters to the engine fuel injectors while allowing an excessive air pressure to escape from the fill opening around the ball.

4,759,335
DIRECT FUEL INJECTION BY COMPRESSED GAS

Peter W. Ragg, Mount Lawley; Michael L. McKay, Willetton, and Roy S. Brooks, South Perth, all of Australia, assignors to Orbital Engine Company Proprietary Limited, Balcatta, Australia

PCT No. PCT/AU86/00200, § 371 Date Mar. 11, 1987, § 102(e) Date Mar. 11, 1987, PCT Pub. No. WO87/00583, PCT Pub. Date Jan. 29, 1987

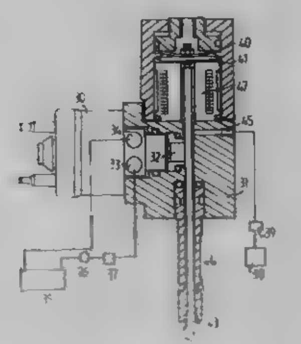
PCT Filed Jul. 18, 1986, Ser. No. 40,779

Claims priority, application Australia, Jul. 19, 1985, PH01558

Int. Cl.⁴ F02M *23/00*

U.S. Cl. 123—531 26 Claims

12. Apparatus for injecting liquid fuel into a combustion chamber of a spark ignited internal combustion engine comprising means to establish a mixture of liquid fuel and gas as a fuel-gas charge for delivery to the combustion chamber, metering means to vary the quantity of fuel in said charge in accordance with the engine load demand, and means to deliver said fuel-gas charge through a selectively openable port to the combustion chamber as a fuel spray, said port having a fixed configuration when open selected to cause the fuel-gas charge to respond to the quantity of fuel therein so that at metered quantities of fuel below a first predetermined value the fuel spray issuing from the port into the combustion chamber has a degree of penetration into the combustion chamber less than that of the fuel spray issuing when the metered quantity of fuel is above a second predetermined value greater than said first.



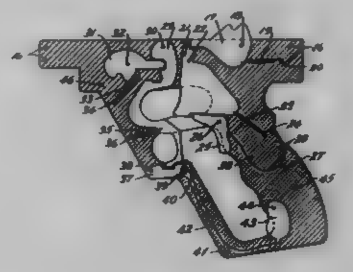
4,759,336
DOUBLE UNDERWATER SPEARGUN

Patrick F. Frain, 628 SE. 5th St., #5, Delray Beach, Fla. 33483

Filed Sep. 26, 1986, Ser. No. 912,110

Int. Cl.⁴ F41B *7/00*

U.S. Cl. 124—22 10 Claims



1. An underwater speargun comprising:

an elongated tubular barrel having a forward end, a rear end, and an upper and lower spear support means, a hollow hand grip attached intermediate the ends of said barrel, upper and lower pivotally attached trigger means located inside said hand grip, upper and lower pivotally attached sear means engaging respective ones of said trigger means, first and second elongated spear means for slidably engaging said spear support means, each of said spear means having means at one of its ends for releasably engaging said first and second sear means and further having at said one end means for releasably attaching sear propelling means; upper and lower safety means for automatically locking said respective trigger and sear means and to release said sear means when said trigger and safety means are simultaneously activated, said sear spear propelling means being elastic means attached to and stretched from the forward end of said barrel and attached to respective ones of said spear means at one end, and at least one tubular structure attached to said speargun and sealed at its ends to form an airtight chamber whereby the buoyancy of said speargun is increased to achieve neutral buoyancy under water.

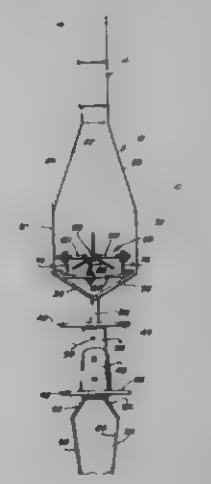
4,759,337
BOW WITH OPTIMUM DEPTH PERCEPTION AND VISIBILITY ENHANCING SIGHT WINDOW

Michael R. Suski, 313 N. Elms Rd., Flushing, Mich. 48433

Filed Jun. 19, 1985, Ser. No. 746,504

Int. Cl.⁴ F41B *5/00*

U.S. Cl. 124—24 R 11 Claims



1. A bow with a depth perception and visibility enhancing sight window, said bow including a central, elongated and stiff mid-portion and a pair of elongated flexive limbs each including base and free ends, said base ends being mounted from opposite ends of said mid-portion with said free ends projecting substantially endwise outwardly from said opposite ends, at least one end of said mid-portion defining a sight window therethrough, said sight window, when the corresponding limb is disposed upright and uppermost, being vertically elongated and including generally straight upwardly convergent upper side marginal edges whose upper ends are spaced apart, generally straight downwardly convergent lower side marginal edges and generally straight, parallel upright mid-height side marginal edges extending between the corresponding upper and lower side marginal edges and defining a maximum width portion of said window therebetween, said lower side marginal edges, from the maximum width portion of said window, extending downwardly to the lowermost extremity of said window a vertical distance considerably less than said maximum width portion and said upper side marginal edges extending upwardly from said maximum width portion a vertical distance considerably greater than said maximum width portion, said mid-portion including a handgrip extending longitudinally thereof and spaced below said window, said bow including arrow rest means in said window defining a ready rest position for an arrow substantially transversely centered in said maximum width portion and disposed at an elevation therein at least closely adjacent the lower extremity of said maximum width portion, the vertical elongation of said window and the gradual upward convergence of the upper side edges thereof above said rest providing an upper sight window portion of predetermined shape above the ready rest position which is appreciably greater in height than width thereby serving to enhance depth perception and visibility of a target viewed through said window, especially by an instinctive shooter, said upper sight window portion being free of obstruc-

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tions therein which would destroy, visually, said predetermined shape of and clutter and obstruct an instinctive shooter's view through said upper sight window portion

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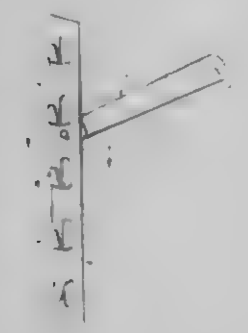
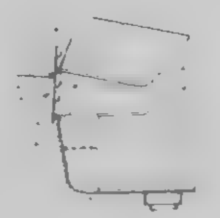
4,759,338

BARBECUE COVER SUPPORT DEVICE

Donald W. Croft, 4118 Kane St., San Diego, Calif. 92110
Filed Apr. 29, 1987, Ser. No. 44,061
The portion of the term of this patent subsequent to Apr. 29, 2003, has been disclaimed.
Int. Cl.⁴ F24B *3/00*
U.S. Cl. 126—25 R 8 Claims





1. A support device for securing the cover of a barbecue in a partially opened position with respect to an underlying brazier comprising:
- an elongated planar support member having a first and second end;
- a plurality of cover retaining hooks spaced along the length of said support member for receiving and supporting the rim of the barbecue cover;
- each of said retaining hooks being cut from said support member and formed to project first outwardly from said support member and then generally parallel to the plane of said support member toward said first end of said support member;
- a brazier hook cut from said support member between said second end and said retaining hooks for engaging over the rim of the brazier, said brazier hook being formed to project first outwardly from said support member and then generally parallel to the plane of said support member toward said second end thereof; a handle member having a heat insulated handle; and
- securing means for rigidly securing said handle member to said support member

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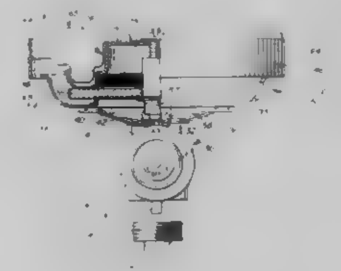
4,759,339

COMPACT SINGLE BURNER PROPANE CAMPSTOVE

Dennis V. Hefling, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed Nov. 14, 1986, Ser. No. 930,520
Int. Cl.⁴ F24C *5/02*
U.S. Cl. 126—44 11 Claims

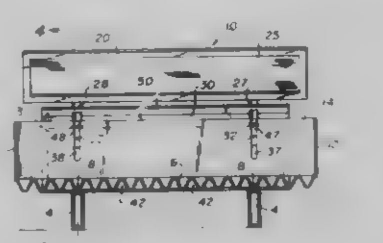
1. A propane cooking apparatus which is adapted to be fueled by a propane tank comprising:
- (a) a pressure regulator assembly including a threaded connector adapted to be connected to a propane tank,
- (b) a spider support bracket having a central portion attached to the regulator assembly and a plurality of outwardly extending arms,
- (c) a reflector bowl attached to the outwardly extending arms of the spider support bracket, said arms of the spider support bracket providing the only connection between the reflector bowl and the regulator assembly,
- (d) a burner assembly above the reflector bowl, and
- (e) support means between the reflector bowl and the burner assembly for supporting the burner assembly and for providing insulation between the burner assembly and the reflector bowl

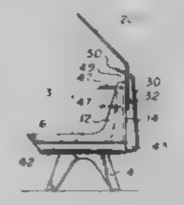


4,759,340

FIRE GRATE

Wun C. Choong, 63 Wallace Place, Delta, British Columbia, Canada (V4M 3S2)
Filed Jun. 5, 1987, Ser. No. 58,420
Int. Cl.⁴ F23H *13/00*
U.S. Cl. 126—164 6 Claims





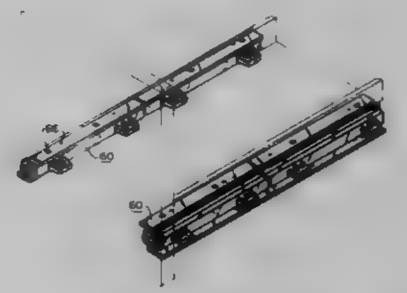
1. A fire grate comprising:
- a support framework including an imperforate base plate having a rear backing plate including slots and end plates to define an area for burning combustible material;
- screen means to trap and reburn volatile products extending over said area for burning combustible material means for positioning said screen means and sensing a vertical level of said combustible material, said means for positioning and sensing being sliably mounted in said slots in said rear backing plate; and
- means to deliver fresh air to said means to trap and reburn volatile products.

4,759,341

SLIDING RAIL SUPPORT SYSTEM

Robert H. McFarland, Mansfield, Ohio, assignor to The Tappan Company, Ohio
Filed Oct. 10, 1986, Ser. No. 917,663
Int. Cl.⁴ F24C *15/16*
U.S. Cl. 126—339 13 Claims

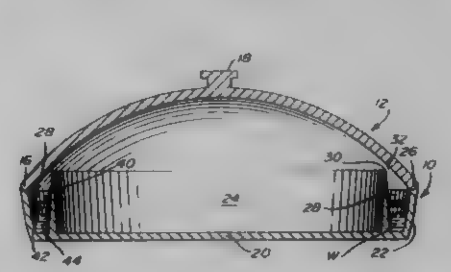
1. A slidable support system comprising first and second rails, ech said rail having a generally angle shaped cross section with first and second sides joined along an edge and extending substantially perpendicular to one another, the first sides of each rail being substantially flat and defining a mounting surface, the second sides of each rail having a channel shaped groove extending longitudinally therein, said rails being positioned with the open sides of their respective channel grooves facing one another and their mounting surfaces in first and second parallel spaced apart planes on opposite sides of said facing channel grooves, said first sides having mounting means to enable said rails to be mounted with said first sides thereof in separate ones of said parallel spaced apart planes, and first and second bearings in said grooves, said bearings having cruciform cross sections with lateral projections extending in opposite channel grooves of the rails and ribs extending between and spacing said rails, and further comprising first and second relatively movable members having mounting surfaces in said first and second planes respectively, the mounting surfaces of said first sides of said first and second rails being affixed to said first and second members, respectively, by said mounting means, said mounting means comprising means enabling relative pivoting between said first and second rails.



4,759,342

COOKING UTENSIL

Kendal A. Lee, 69 Frederick Street, Port-of-Spain, Trinidad and Tobago; Terrence K. Lee, 3273 Pinkerton Dr., San Jose, Calif. 95148, and Margaret A. Lee, 69 Frederick Street, Port of Spain, Trinidad and Tobago
Filed Jun. 8, 1987, Ser. No. 59,541
Int. Cl.⁴ A47J *27/00*
U.S. Cl. 126—381 7 Claims

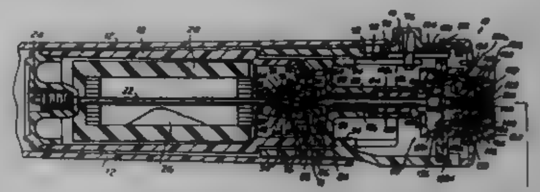


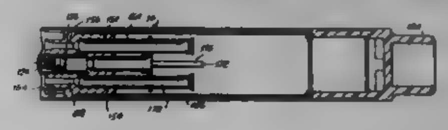
1. A cooking utensil comprising a frying pan and a lid for covering the pan, the frying pan including a flat bottom wall adapted to be placed on a heating surface and an upstanding peripheral wall, the flat bottom wall divided into a food frying surface area and a water reservoir area adjacent the food frying surface, an upstanding inner wall separating the water reservoir area and the food frying area, said lid being provided to form a closed compartment with the pan, the lid and pan having means allowing any water condensing on the interior surface of the lid to drain back into the water reservoir area, the construction being such that as food is being fried by heat on the food frying surface of the bottom wall, water is simultaneously boiled in the water reservoir to produce steam into the atmosphere of the closed compartment to thereby produce a moisture saturated atmosphere.

4,759,343

PORTABLE CURLING IRON

William Schawbel, and Thaddeus Zaborowski, both of Cambridge, Mass., assignors to The Schawbel Corporation, Cambridge, Mass.
Continuation of Ser. No. 781,262, Sep. 27, 1985. This application Nov. 9, 1987, Ser. No. 117,904
The portion of the term of this patent subsequent to Mar. 29, 2005, has been disclaimed.
Int. Cl.⁴ A45D *1/02*
U.S. Cl. 126—409 3 Claims





1. A portable heating appliance having a member to be heated, comprising:
- burner means for heating said member;
- a portable fuel cartridge for supplying fuel to said burner means, said fuel cartridge including an aperture through which said fuel escapes from said fuel cartridge and fuel delivery valve means for controlling the flow of fuel from said fuel cartridge through said aperture, said fuel delivery valve means including
  - control means for preventing the flow of fuel when in a first position and for permitting the flow of fuel when in a second, different position, said control means including valve seal means for selectively permitting or preventing the flow of fuel through said aperture and stem means movable between said first and second positions in response to an external force for controlling said valve seal means to respectively permit or prevent the flow of fuel through said aperture, and
  - first biasing means for biasing said stem means of said control means to said first position in a direction opposite to said external force,
- actuator means for actuating said fuel delivery valve means in response to user actuation to start the flow of fuel from said fuel cartridge, said actuator means including plunger means which pushes in said control means from said first postion to said second position so as to apply said external force thereto against the force of said biasing means to open said fuel delivery valve means so that the latter permits the flow of fuel to said burner means; and
- regulator means for maintaining a substantially constant flow rate of fuel to said burner means.

4,759,344

WANG'S TUBULES FOR SPERM PREPARATIONS USED FOR IVF-ET-GIFT AND ARTIFICIAL INSEMINATIONS

Fu-Nan Wang, 3527 Purdue Ave., Los Angeles, Calif. 90066
Filed Aug. 11, 1986, Ser. No. 856,659
Int. Cl.⁴ A61K *35/00*
U.S. Cl. 128—1 R 9 Claims

1. A method for seperating motile sperm from a semen specimen comprising the steps of:
- providing a hollow glass tubule having a predetermining length and an inlet end;
- filling said tubule with sperm media;
- providing a semen specimen;

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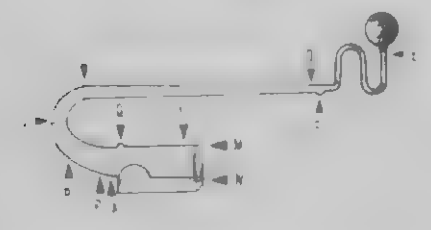
placing said specimen in communication with said media through said inlet,

incubating said media and specimen for a predetermined period of time whereby motile sperm will swim away from said specimen and through said tubule;



providing at least one score line around the outside surface of said tubule a perdetermined distance from said inlet and collecting said sperm by breaking said tubule along said score line and separating and collecting the contents thereof upstream of said score line.

4,759,345

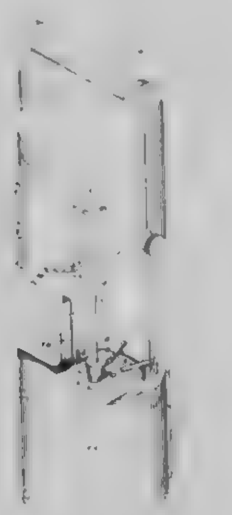
RADIATION SHIELDED SEED LOADER FOR HAND IMPLANTER HYPODERMIC NEEDLES APPARATUS AND METHOD

Vitthalbhai D. Mistry, 11306 Pradera Dr., Austin, Tex. 78759

Filed Feb. 9, 1987, Ser. No. 12,626

Int. Cl.⁴ A61N *5/01*

U.S. Cl. 128—1.2 11 Claims



1. A radiation shielded seed loader for hand implanter hypodermic needles comprising:

(A) a means for radiation attenuation;

(B) a means for supporting and lifting said radiation attenuation means attached to said radiation attenuation means.

(C) a means for aligning needles positioned over said radiation attenuation means;

(D) a removable seed loading means with a plurality of funnel holes for dropping in radioactive seed means;

(E) a well means in said radiation attenuation means for receiving needle tips loaded with said radioactive seed means so that said tips of said needles, once loaded with said radioactive seed means, are surrounded and shielded by said radiation attenuation means; and

(F) a removably attachable means, with handle, for covering and protecting tops of said needles during transportation of said needles

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4,759,346

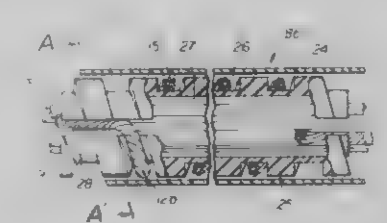
ENDOSCOPE DEVICE

Shigeru Nakajima, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Feb. 17, 1987, Ser. No. 15,470

Int. Cl.⁴ A61B *1/06*

U.S. Cl. 128—6 17 Claims



1. An endoscope device comprising

two kinds of electronscopes different at least in the length of the insertion part and each provided with an insertion part elongated so as to be insertable into a body cavity or the like, a solid state imaging device having its imaging surface having a photoelectric converting function arranged in the focal plane of an objective arranged on the tip side of said insertion part and forming an imaging means together with said objective and an illuminating means provided at the tip of said insertion part;

a camera controlling unit housing a solid state imaging device driving circuit generating driving pulses for reading out signals in said solid state imaging device and a video signal processing means taking in and processing the output signal put out of the solid state imaging device by impressing said driving pulses;

a monitor means displaying as a picture image the video signal put out of said video processing means; and

a signal cable connecting said solid state imaging device and camera controlling unit with each other, transmitting said driving pulses and output signals and made to be of a fixed length irrespective of the length of the insertion part of said electronscope

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4,759,347

ENDOSCOPE APPARATUS USING SOLID STATE IMAGE PICKUP DEVICE

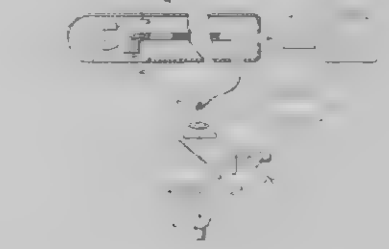
Kunio Ando, Yono, Japan, assignor to Fuji Photo Optical Company, Ltd., Japan

Filed Sep. 8, 1982, Ser. No. 415,801

Claims priority, application Japan, Sep. 12, 1981, 56-144407; Sep. 12, 1981, 56-144408

Int. Cl.⁴ A61B *1/06*

U.S. Cl. 128—6 16 Claims



1. An endoscope for observing and recording an object in a body cavity or machine, the endoscope including an end section for insertion into the body cavity or machine, said end section comprising:

(a) means for alternately illuminating the object with green light and white light;

(b) an image-forming optical system for forming an image of the object;

(c) a self-scanning solid state image pickup device having a plurality of picture elements for converting the image formed by said optical system into an electrical signal; and

(d) cyan and yellow filters arranged in an alternating manner and positioned adjacent said plurality of picture elements, whereby:

(i) when green light is emitted from said illuminating means to the object, an image signal corresponding to the green component of the object is picked up from all of said plurality of picture elements of said solid state image pickup device, and

(ii) when white light is emitted from said illuminating means to the object, an image signal corresponding to the cyan component of the object is picked up from those of said plurality of picture elements where said cyan filters are positioned and an image signal corresponding to the yellow component of the object is picked up from those of said plurality of picture elements where said yellow filters are positioned.

4,759,348

ENDOSCOPE ASSEMBLY AND SURGICAL INSTRUMENT FOR USE THEREWITH

Charles D. Cawood, 11527 N. Lou Al Ct., Houston, Tex. 77024

Filed Sep. 28, 1981, Ser. No. 306,086

Int. Cl.⁴ A61B *1/06*

U.S. Cl. 128—6 25 Claims

1. In combination with a surgical instrument dimensioned and adapted to be held and operated by one hand; said instrument having non-flexible handle, shank, and operating end portions rigidly connected to each other to provide tactile feedback therethrough to a user gripping and manipulating said handle portion when objects are engaged by said operating end portion; an image-receiving assembly comprising an optical head, viewing means remote from said head, and an elongated flexible cable assembly extending therebetween; mounting means rigidly but detachably securing said head externally to said operating end portion of said instrument; said instrument and said viewing mean being independently movable in relation to each other to the extent permitted by said flexible cable assembly; said cable assembly including first flexible transmitting means extending therethrough for transmitting energy to said head for illuminating a working area adjacent said operating end portion; and second flexible transmitting means extending through said cable from said head to said viewing means for providing at said viewing means an image of the work area illuminated by said first transmitting means adjacent said operating end portion.

4,759,349

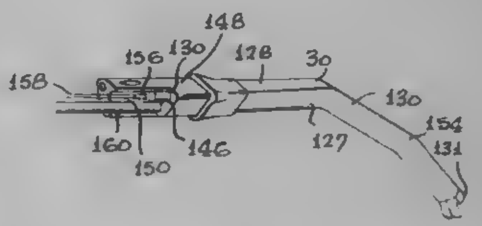
SURGICAL INSTRUMENT HAVING A HEAT SINK FOR IRRIGATION, ASPIRATION, AND ILLUMINATION

Bard B. Betz, Reno, Nev.; Daniel J. Conley, Oceanside, Calif.; Larry Blankenship, Boulder, Colo.; Stephen J. Krienick, San Diego; Bradley J. Denny, San Marcos; Charles T. Bovey, Escondido, and Jeffrey P. Castleberry, San Diego, all of Calif., assignors to Vitalmetrics, Inc., San Diego, Calif.

Filed Feb. 24, 1986, Ser. No. 832,478

Int. Cl.⁴ A61B *1/06*; A61M *1/00*

U.S. Cl. 128—6 23 Claims



1. A surgical instrument for enabling a user using one hand to probe an incision and illuminate, irrigate and aspirate said incision, said instrument comprising:

an elongated handle member having first and second ends and a perimeter wall defining a cross section dimensioned so as to fit comfortably in said user's one hand;

an elongated probe member having first and second ends, said probe member first end attached to said handle member second end;

irrigation passageway means in said handle member and probe member extending from said handle member first end to said probe member second end for conveying a first fluid from a fluid supply coupled to said handle member first end for discharge at said probe member second end;

aspiration passageway means in said handle member and probe member extending from said handle member first end to said probe member second end for drawing a second fluid from said probe member second end to a vacuum source coupled to said handle member first end;

illumination passageway means in said probe member for conducting light from said probe member first end to said probe member second end;

electrically energizable lamp means for supplying light proximate to said illumination passageway means at said probe member first end;

a heat sink comprising a mass of highly heat conductive material tightly thermally coupled to said lamp means and having a tubular section extending therethrough for enabling said second fluid to pass therein to convey heat away from said heat sink mass; and wherein

said aspiration passageway means includes said tubular section. said heat sink mass.

4,759,350

INSTRUMENTS FOR SHAPING DISTAL FEMORAL AND PROXIMAL TIBIAL SURFACES

Harold K. Dunn, 1231 Chandler Cir., and Kim C. Bertin, 666 Northcliffe Cir., both of Salt Lake City, Utah 84103

Filed Oct. 17, 1986, Ser. No. 919,971

Int. Cl.⁴ A61F *5/04*

U.S. Cl. 128—92 VW 30 Claims

1. A system of instruments for shaping the distal femur and proximal tibia surfaces for knee replacement surgery comprising, for preparing the distal femur: a femoral alignment guide having a body for attachment across the distal femur, which body includes means for mounting other instruments thereto and an intramedullary rod means that extends therefrom for insertion into a hole drilled in the distal femur to intersect the femur intramedullary channel for referencing said femoral

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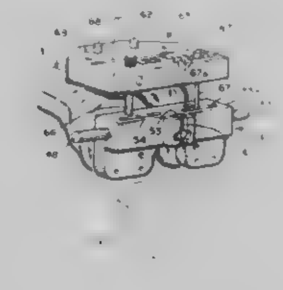
alignment guide positioning to said intramedullary channel; an anterior femoral cutting guide means for attachment to said femoral alignment guide that includes a saw blade guide means for guiding travel of a saw blade operated to cut across the anterior femoral condyles in a plane that is parallel to the patient's intramedullary channel; a distal femoral cutting guide that includes, a body with means for securing it to said femoral alignment guide at an angle from a right angle therebetween such that a saw blade guide means formed through said body will be at a right angle to the patient's mechanical axis that includes a pivot pin means that extends from the body of said distal femoral cutting guide for fitting in a pivot hole formed in the femoral alignment guide and a plurality of hole means formed in a side of the body of said femoral alignment guide, each said hole means angled from the vertical, progressively from larger to smaller or smaller to larger, and straight pin means for fitting through a selected hole means and for securing in an appropriate recess in said femoral alignment guide body; means for securing said body of said distal femoral cutting guide to the distal femur surface that is provided by removal of said anterior condyles, and means for shaping to square the anterior and posterior condyles to the plane of the distal femur after the end thereof has been resectioned to a plane that is at a right angle to the patient's mechanical axis; and, for preparing the proximal tibia: a tibial cutting guide consisting of, a sleeve that is open on one end to receive a tube telescoped therein and includes a spike means on the other end thereof for securing that sleeve end into the tibia at the ankle; means for connecting said tube end that is opposite to said telescoped coupling into the tibia near the proximal tibia; means for releasably maintaining the positioning of said sleeve relative to said tube; rod means mounting a cutting platform means on one end that is telescoped into said tube at its opposite end; means for releasably maintaining the positioning of said rod means relative to said tube; and said cutting platform means consists of a body that includes a saw guide for aligning a saw blade to the proximal tibia end so as to cut across that bone to provide a flat surface thereacross



4,759,351
OSTEOTOMY METHOD FOR BIOMECHANICAL FEMORAL NECK LENGTHENING AND TORSION

D. Barclay Slocum, 241 Spy Glass Dr., Eugene, Oreg. 97401

Filed Dec. 29, 1986, Ser. No. 946,863

Int. Cl.⁴ A61F *5/04*

U.S. Cl. 128—92 VY **11 Claims**

1. A method of performing a biomechanical femoral neck-lengthening osteotomy comprising:
- treating the proximal end of the femur in such manner as to permit increasing the distance between the femoral head and the greater trochanter;
- adjusting the proximal end of the femur in such manner that the distance between the femoral head and the greater trochanter is increased; and

- fixing such adjusted sections against further movement relative to one another.

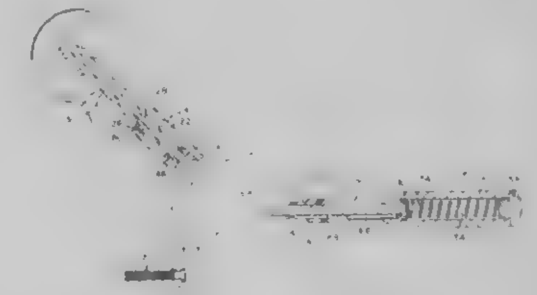
4,759,352
INSTRUMENT FOR INSERTING A LOCKING PIN

Anthony J. Lozier, Warsaw, Ind., assignor to Zimmer, Inc., Warsaw, Ind.

Filed Nov. 10, 1986, Ser. No. 928,765

Int. Cl.⁴ A16F *5/04*

U.S. Cl. 128—92 YS **7 Claims**



1. An instrument assembly for inserting a locking pin in a hip screw assembly wherein the locking pin cooperates with a screw and a barrel which forms an opening to receive the screw, the instrument assembly including a handle for manual orientation, a rod extending outwardly from the handle and telescopically disposed relative to the handle, the handle defining a cavity receiving resilient means biasing the rod outwardly from the handle, a finger engaging the handle and cooperating with the rod to oppose rotation of the rod relative to the handle, and a sleeve movably carried by the rod and releasably carrying the locking pin, the rod including means cooperating with the screw to align the locking pin relative to the screw and the means further being adapted to rotate the screw relative to the barrel such that movement of the handle relative to the rod engages the finger with the locking pin to insert the latter into the barrel in engagement with the screw and the barrel to oppose rotation therebetween while the rod is collapsed into the cavity to compactly arrange the rod and handle during insertion of the locking pin.

4,759,353
UNIVERSAL FOREARM SLING AND HUMERAL [redacted]

Michael G. Melendez, and Kathryn M. Melendez, both of 1300 Birch Banks, Sagle, Id. 83860

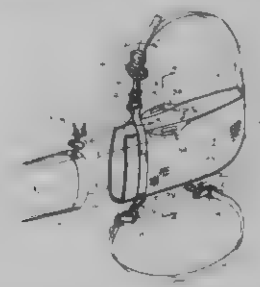
Filed Feb. 2, 1987, Ser. No. 9,931

Int. Cl.⁴ A61F *5/40*

U.S. Cl. 128—94 **15 Claims**

1. A universal forearm sling and humeral stabilizer comprising, a fabric sling sack formed from a section of material that is folded longitudinally upon itself having a fold length to contain a patient's forearm supported on that fold, said sling sack

having opposite first and second ends, the first end open therealong to accommodate a patient's hand fitted therethrough, the second end closed and angled from the horizontal to approximate the angle from the horizontal that a patient's humerus will occupy when their forearm is supported in the sling sack, the second closed end snugly fitting against and supporting that upper arm; a longitudinal strap means that is a fabric belt and



is secured to said sling sack along its folded edge from said first open end along said folded edge and said closed second end and extends from said closed second end as a sling strap means that is for fitting around the patient's neck; a lateral strap means that is secured to said sling sack, proximate to the open first end thereof, that terminates in a coupling means; and a strap end coupling means secured to the end of said sling strap means for releasable connection to said coupling means.

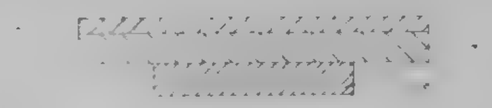
4,759,354
WOUND DRESSING

Alan J. Quarfoot, Palatine, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Nov. 26, 1986, Ser. No. 935,427

Int. Cl.⁴ A61L *15/00*

U.S. Cl. 128—156 **11 Claims**



1. A wound dressing for preventing pooling of wound exudate and for promoting healing comprising, in order, the following essential elements:
- an outer oxygen- and vapor-permeable layer permitting transpiration of liquid from said dressing;
- an intermediate layer having an adhesive capability for adhering the dressing to the skin and an absorbent capacity for wound exudate;
- and a layer consisting essentially of collagen for promoting healing adapted to be placed directly on the wound, said collagen layer being of smaller dimensions than said intermediate layer, whereby adhesive portions of said intermediate layer extending beyond the periphery of said collagen layer are exposed for adhering said dressing.

4,759,355
[redacted]

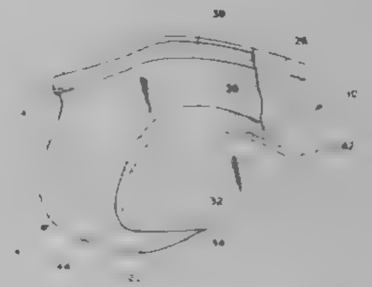
John H. Thrower, 1231 Belrose La., Charlotte, N.C. 28209

Filed Apr. 6, 1987, Ser. No. 34,379

Int. Cl.⁴ A61F *5/40*; A41B *9/02*

U.S. Cl. 128—159 **14 Claims**

1. A male undergarment comprising: a tubular body-encasing portion having front, back, and crotch areas and a pair of leg-receiving openings therein, said front area having a scrotum-underlying section and a substantially circular opening defined in said section through which the penis and scrotum are received; a waistband secured to said front area of said tubular body -encasing portion separate from said substantially circular opening; an outer front covering panel having a crotch area connecting edge and an upper edge secured to and extending from said crotch area over said front area proximate said waistband and extending horizontally substantially across said front area to cover more than one-half the circumference of the wearer, said front covering panel being secured to said crotch area along said crotch area connecting edge and extending therefrom along said leg openings to a location between said front and back areas and then upwardly therefrom proximate said waistband thereby forming a separate layer of fabric



extending across more than one-half the circumference of the wearer and a genital-receiving pocket between said front area and said front covering panel; stretchable means retaining said upper edge of said front covering panel in a first unsecured contiguous relationship with said waistband and permitting biased displacement of said upper edge of said front covering panel to allow access to said pocket whereby the wearer is provided with an absorbent fabric layer functioning also to protect from rashes and reduce scrotal temperature.

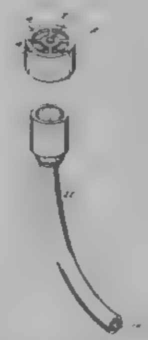
4,759,356
TRACHEOSTOMY DEVICE AND RELATED METHODS

David Muir, Passy & Passy, Inc., 4521 Campus Dr., Irvine, [redacted]

Continuation-in-part of Ser. No. 709,543, Mar. 8, 1985, abandoned. This application Oct. 3, 1986, Ser. No. 936,144

Int. Cl.⁴ A61M *16/00*

U.S. Cl. 128—207.16 **24 Claims**



1. A method of alleviating physiological dysfunction and improving bodily function in a patient who has been subjected to tracheostomization, where the dysfunction results from the tracheostomization and the function is impaired by the tracheostomization, the patient having a neck-opening into the patient's trachea, the neck opening being adapted to admit air into the trachea, said method comprising the steps of:

(1) providing a tracheostomy tube having
- a tracheal end adpated to be received in the patient's trachea,
- a proximal end adapted to be external to the patient's body [redacted]
- a tube passage extending therethrough, said tube passage having a tube inlet at said proximal end and a tube outlet at said tracheal end in the patient's trachea;

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(2) inserting into the trachea via the neck opening said tracheostomy tube such that the tracheal end is received in the patient's trachea and the proximal end is external to the patient's body, whereby said tube conducts air to the patient's trachea from said inlet to said outlet via said tube [illegible]

(3) providing a tracheostomy valve unit adapted to cooperate with said tracheostomy tube inserted into the patient's trachea, having
- a first end adapted for connection to the proximal end of said tracheostomy tube.
- a second end,
- a valve's unit inlet located at the second end of said valve unit,
- conducting means for permitting airflow therethrough from said inlet through said valve unit and then to the tube to the patient's trachea when the patient inhales, and
- blocking means making positive, uninterrupted closure contact with the valve unit inlet and thereby, entirely blocking airflow through said conducting means from the tube and through said valve inlet at all times when the patient exhales and at all other times except when the patient inhales; and

(4) fluidically connecting said valve first end to said proximal end of said tracheostomy tube and thereby, permitting airflow from said valve unit inlet through said valve unit and then through said tube inlet to the patient's trachea when the patient inhales and entirely blocking airflow through said conducting means from said tube inlet and through said valve unit inlet to the ambient air at all times when the patient exhales and at all other times except when the patient inhales

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4,759,357

PODIATRIC ORTHESIS FOR ORIENTATION OF THE CALCANEUS AND SUBTALAR BONES

Gérard Allart, 995 Myrand, Ste Foy, Quebec, Canada (G1V 2W1), and Luc R. Albert, 1440 de Lantagnac, Sillery, Quebec, Canada (G1T 2E6)

Filed Jan. 28, 1987, Ser. No. 7,660

Int. Cl.⁴ A61F *5/14;* **A43B** *7/14*

U.S. Cl. 128—581 **8 Claims**

1. An one-piece podiatric orthesis conceived according to anatomical and medical standards for the tridimensional plantar development of the foot of a patient, said orthesis acting simultaneously on both the calcaneus and subtalar of said patient's foot and comprising:

(a) a rear part in the form of a cupola open at a forward end thereof, said cupola being designed and dimensioned for adapting to the calcaneus of the patient's foot and including:
- a cupola bottom wall having a rear edge, and inner edge and an outer edge, said cupola bottom wall being forwardly and upwardly uprighted according to an angle of about 30° with respect to the ground whereby to orient the calcaneus in the said forward direction and according to the said angle; and
- a cupola peripheral border extending upwardly from said bottom wall along the rear, outer and inner edges thereof with respect to said patient's foot, said cupola peripheral border having inner and outer portions corresponding to said inner and outer edges, said inner and outer portions being so shaped and oriented as to (i) neutralise any lateral shifting of the calcaneus and permanently reestablish proper axial alignment of the vertical axis of the calcaneus with the axis of the patient's leg, and simultaneously (ii) orient the longitudinal axis of the calcaneus in the direction of the fifth metatarsus of the patient's foot,

(b) a median part projecting forwardly of and as an extension of said rear part, said median part including:
- a median part bottom wall disposed in the continuation of said cupola bottom wall and having inner and outer edges; and
- an inner border upwardly extending along the inner edge of said median part bottom wall, said inner border of said median part continuously extending the inner portion of said cupola peripheral border, and

(c) a wedged structure defining a wedge tip for supporting and holding the subtalar of the patient's foot, said wedged structure being located at the level of said median part on the inward side of said orthesis and consisting of an integral extension of the inner border of said median part rising up to such a height as to reach and laterally sustain the inner, lower and forward part of the subtalar

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4,759,358

GAS ADMINISTRATION APPARATUS

Raymond S. Gregory, Bingley, England, assignor to The BOC Group, Inc., Montvale, N.J.

Filed Jul. 20, 1987, Ser. No. 75,369

Claims priority, application United Kingdom, Aug. 8, 1986, [illegible]

Int. Cl.⁴ A61M *16/00*

U.S. Cl. 128—200.14 **5 Claims**

1. In combination, at least two gas flow units each mounted on a gas administration apparatus in a removable plug-in fashion, each unit including means which when moved from an off to an operative position admits to the unit a gas from a supply provided by the apparatus and an interlocking system including at least one pin associated with each unit which, when said means is moved towards its operative position, extends outwardly from the unit to engage and move a spacer mounted for sliding movement on the apparatus between adjacent units towards a similar adjacent unit thereby to prevent said means of the similar adjacent unit being moved towards its operative position.

4,759,359

LENS IMPLANTATION INSTRUMENT

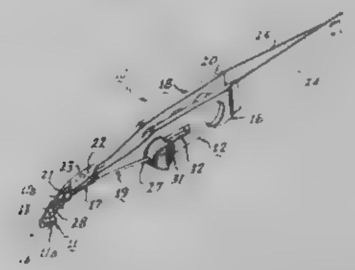
Timothy R. Willis; Lyle E. Paul, both of El Toro, and Stanley L. Van Gent, Laguna Beach, all of Calif., assignors to Allergan, Inc., Irvine, Calif.

Filed Aug. 31, 1987, Ser. No. 91,203

Int. Cl.⁴ A61B *17/36*

U.S. Cl. 128—303 R **9 Claims**

1. A lens implantation instrument, comprising:
- first and second prongs connected together in a forceps-like configuration that is adapted to be grasped in the hand of a user for purposes of holding an intraocular lens to be implanted in an eye;
- the first prong having a distal end portion that defines a trough extending distally, the trough having a size and shape adapted to receive at least a portion of an optic portion of the lens with the optic portion in a folded configuration;
- the second prong having a distal end portion that extends generally parallel to the trough, the distal end portion of the second prong having a size and shape adapted to fit at least partially into the trough;
- first means for enabling the user to move the distal end portions relative to one another between an opened position in which the distal end portions are spaced apart sufficiently to enable placement of the lens between the distal end portions and a closed position in which the distal end portion of the second prong retains at least a portion of the lens in the trough with the lens in a folded configuration; and
- second means for enabling the user to retract the distal end portion of the second prong proximally relative to the trough in order to facilitate release of the lens.



4,759,360

[illegible] COAGULATION SYSTEM

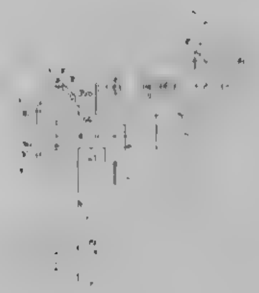
Takaji Nakanishi, Toyokawa, Japan; David R. Hennings, Half Moon Bay, Calif., and Masao Niino, Okazaki, Japan, assignors to Kowa Company Ltd., Aichi, Japan and Coherent Incorporated, Palo Alto, Calif.

Filed Oct. 14, 1986, Ser. No. 919,315

Claims priority, application Japan, Oct. 16, 1985, 60-228833

Int. Cl.⁴ A61B *17/36*

U.S. Cl. 128—303.1 **13 Claims**



1. A laser coagulation system for use in an ophthalmological treatment in which a laser beam is radiated into the eyeball of a patient to develop heat causing thermal coagulation at a selected portion in the eyeball, the system comprising
- a slit image projector for projecting a slit image into the eyeball of a patient to determine a selected portion of the eyeball to be coagulated;
- a laser beam projector for projecting a laser beam onto the selected portion of the eyeball to be coagulated in the eyeball;
- wherein both of said projectors include a common reflecting means for directing the slit image or the laser beam toward the selected portion of the eyeball, said reflecting means being divided into side portions for directing the slit image toward said selected portion and a central portion for directing the laser beam toward said selected portion; and
- the slit image projector including a slit aperture for producing slit light, a condenser lens for condensing the slit light, and a deflection prism arranged between the slit aperture and the condenser lens and having a roof-shaped surface one half of which serves to deflect the slit light toward one side portion of said reflecting means and the other half of which serves to deflect the slit light toward the other side portion thereof.

[illegible]

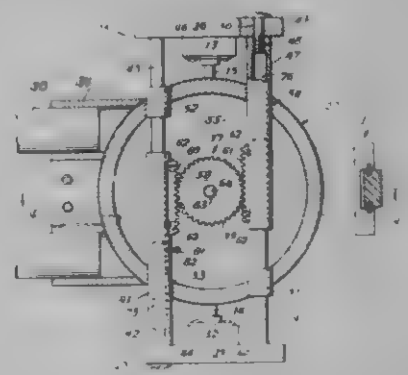
TELESCOPIC ADJUSTMENT ASSEMBLY FOR HEAD POSITIONING MEANS IN A CEPHALOSTAT

James L. Gallop, Wheaton, and Andrew J. Majka, Chicago, both of Ill., assignors to B. F. Wehmer Co., Inc., Franklin Park, Ill.

Filed Aug. 18, 1986, Ser. No. 897,606

Int. Cl.⁴ G03B *41/16*

U.S. Cl. 128—303 B **[illegible] Claims**



1. A telescoping adjustment assembly for head positioning means in a cephalostat, said telescoping adjustment assembly comprising:
- a rotatable pinion;
- a pair of opposingly faced gear racks being engaged by said pinion, the gear racks being mounted in substantially parallel relationship on a pair of sleeve means, whereby upon rotation of the pinion said gear racks, and thereby said sleeve means, are carried in generally opposite direc[illegible]
- said sleeve means having two ends, a hollow passageway therein, one end of which being an open end of the passageway and the other end being attached to a bracket means for supporting head positioning means thereon;
- a pair of slide arm means having an end thereof slidably accommodated within said hollow passageway of said sleeve means through said open end of the sleeve means and said slide arm means having an opposite end thereof being attached to said bracket means;
- a cephalostat having a housing means;
- said sleeve means and slide arm means slideably and supportably mounted to said cephalostat housing means whereby upon rotation of the pinion said bracket means are adjustably movable relative to the cephalostat housing means; and,
- means for rotating said pinion, said means being manually rotatable for moving said bracket means.

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4,759,362
CAUTERIZING HEMOSTATIC EQUIPMENT

Akira Taniguchi, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 802,297, Nov. 27, 1985, abandoned. This application Apr. 21, 1987, Ser. No. 42,582
Claims priority, application Japan, Nov. 28, 1984, 59-251234
Int. Cl.⁴ A61B *17/36*
U.S. Cl. 128—303.1 4 Claims

1. A cauterizing hemostatic device comprising.

a probe adapted to be inserted into a body cavity through a channel provided in an endoscope for insertion of a treating tool, said probe having at a front end (12) thereof a semiconductor heating element (22) of small heat capacity which has an electron avalanche characteristic, a voltage drop across said heating element at a constant current being dependent on the temperature thereof; and

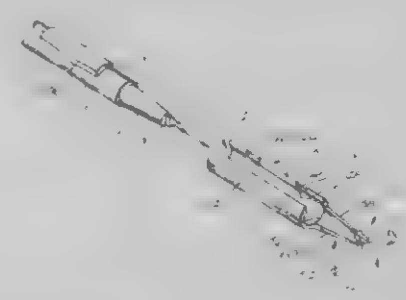
a current supply circuit connected to said heating element through a rear end connector of said probe, said current supply circuit including a constant current circuit means (21) for applying a constant heating current to said heating element at a set current level, and a heating control circuit means (23) connected to said constant current circuit means (21) for adjustably setting and controlling said level of constant current applied to said heating element (22);

said current supply circuit constant current circuit means (21) including a first resistance means (21r_1, r_8) connected in series with said heating element (22) and a transistor (21*b*) such that a voltage across said first resistance means varies in proportion to variations in said applied heating current, a reference voltage source (23r_4), and a voltage regulator (21*a*) to compare said first resistance means voltage with voltage of said reference voltage source and to control current through said first resistance means (21r_1, r_8) so as to apply a constant current to said heating element; and

said heating control circuit means (23) including a second resistance means (23r_1) connected in series with said transistor (21*b*), said first resistance means (21r_1, r_8) and said heating element (22), and a comparator (23*a*) connected to both ends of said second resistance means (23r_1) to compare a voltage drop of said second resistance means with a voltage of said reference voltage source (23r_4), an output of said comparator (23*a*) being connected to said transistor (21*b*) to control current therethrough so that, by positive feedback of the heating current as measured by the voltage drop across said second resistance means (23r_1) the level of constant current from the constant current circuit means (21) will be set to make the sum of the voltages of the heating element (22) and the first resistance means (21r_1, r_8) constant such that heating current will be increased with an increase of heat dissipation within said body cavity to maintain the temperature of said heating element (22) constant.

4,759,363
SCALPEL WITH REMOVABLE DEPTH GUARD

Ronald P. Jensen, 1612 Golf Club Dr., Glendale, Calif. 91206
Filed Sep. 17, 1985, Ser. No. 776,851
Int. Cl.⁴ A61F *17/32*
U.S. Cl. 128—305 17 Claims



1. A scalpel comprising:

a handle having at one end a mount terminating at a base;

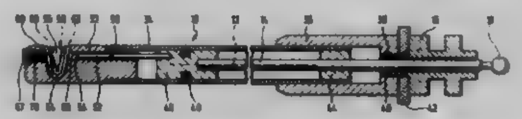
a blade disposed at the mount and defining a first depth of cut in relation to the base;

a detachable guard adapted to limit the depth of cut of the blade to a predetermined, lesser second depth of cut when in place, the guard including at one end a face portion adapted to lie parallel to and adjacent a side of the blade and a tip; and

means for removably attaching the guard to the handle, the attaching means including a connection between the guard and the handle defined by a key and a slot, the key and slot positioned to located the tip in relation to the blade such that the blade projects past the tip a predetermined amount defining the second depth of cut.

4,759,364
PINCERS ATTACHMENT FOR A SURGICAL HANDLE TO BE USED IN ENDOSCOPY

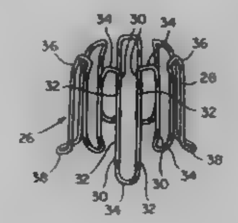
Manfred Boebel, Oetisheim, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany
Filed Aug. 28, 1986, Ser. No. 901,517
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1985, 3533423
Int. Cl.⁴ A61B *17/12*
U.S. Cl. 128—326 15 Claims



1. A pincers attachment for surgical handle to be used in an endoscope, said attachment comprising a hollow outer shaft of a constant diameter and a connecting rod axially displaceable in the outer shaft, said shaft and connecting rod being provided at their proximal ends with coupling parts, an axial position of the shaft relative to the coupling part being adjustable, said coupling parts being fastened respectively to two relatively displaceable parts of a surgical handle, said shaft near a distal end being provided with a solid portion with a laterally opening recess for receiving clip means having compressible legs, said solid portion having a longitudinal bore opening into the recess, a closing rod being received in said longitudinal bore and being connected to the distal end of the connecting rod so that when the displaceable parts are moved, said connecting rod urges a distal end of the closing rod into engagement with a leg of a clip means disposed in said recess to compress the legs of the clip means together.

4,759,365
SPRING COIL WIRE DEVICE

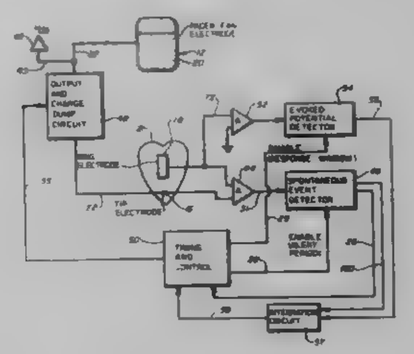
Leo Askinazy, 300 Liberty Avenue, Brooklyn, N.Y. 11207
Filed Mar. 27, 1987, Ser. No. 30,617
Int. Cl.⁴ A16F *5/08*
U.S. Cl. 128—342 9 Claims



1. A pair of spreaders for functioning to temporarily enlarge a person's nasal passages at the anterior ends thereof and also for functioning to temporarily straighten a deviated septum, said spreaders each including an open ended barrel-shaped body constructed of resilient material and wherein each body includes a plurality of peripherally spaced and alternately opposite axial end opening generally U-shaped body segments incorporating generally parallel legs interconnected at one pair of ends by an integral bight portion extending therebetween and further wherein the legs of peripherally adjacent and oppositely axially opening U-shaped body segments are integrally formed.

4,759,366
RATE RESPONSIVE PACING USING THE VENTRICULAR GRADIENT

Frank J. Callaghan, Miami, Fla., assignor to Telectronics N.V., Netherlands Antilles
Filed Mar. 19, 1986, Ser. No. 841,517
Int. Cl.⁴ A61N *1/36*
U.S. Cl. 128—419 PG 16 Claims



1. A cardiac pacing method which comprises the steps of:

applying electrical stimulus pulses to the heart;

detecting a cardiac event potential;

integrating the detected potential over time to obtain the depolarization gradient and a repolarization gradient;

sensing the peak of the depolarization gradient;

sensing the peak of the repolarization gradient;

determining the peak to peak time interval from the depolarization gradient peak to the repolarization gradient peak;

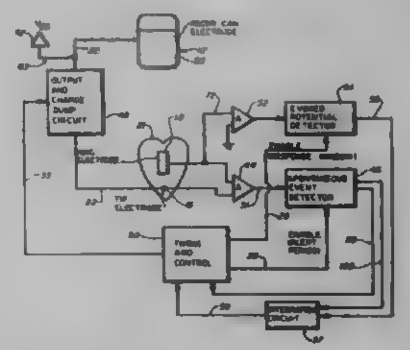
storing said peak to peak time interval;

comparing said peak to peak time interval with a corresponding peak to peak time interval of at least one previous cardiac cycle that has been stored; and

controlling the rate of said electrical stimulus pulses in response to said comparison.

4,759,367
RATE RESPONSIVE PACING USING THE MAGNITUDE OF THE REPOLARIZATION GRADIENT OF THE VENTRICULAR GRADIENT

Frank J. Callaghan, Miami, Fla., assignor to Telectronics N.V, Netherlands Antilles
Filed Mar. 19, 1986, Ser. No. 841,305
Int. Cl.⁴ A61N *1/36*
U.S. Cl. 128—419 PG 16 Claims



1. A cardiac pacing method which comprises the steps of:

applying electrical stimulus pulses to the heart;

detecting a cardiac event potential;

integrating the detected potential over time to obtain the repolarization gradient;

sensing the peak of the repolarization gradient;

determining the repolarization gradient magnitude;

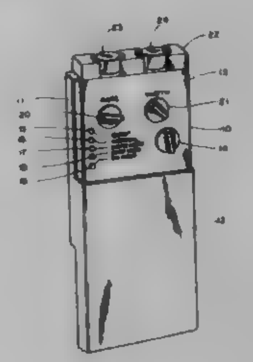
storing said repolarization gradient magnitude;

comparing said repolarization gradient with a corresponding repolarization gradient magnitude of at least one previous cardiac cycle that has been stored; and

controlling the rate of said electrical stimulus pulses in reponse to said comparison.

4,759,368
TRANSCUTANEOUS NERVE STIMULATOR

John B. Spanton, Sunbury; Gregory A. Todd; John P. Landino, both of Westerville; Terry A. Todd, Canton, and Richard J. Fisher, Jr., Sunbury, all of Ohio, assignors to Medical Designs, Inc., Westerville, Ohio
Filed Dec. 2, 1986, Ser. No. 936,828
Int. Cl.⁴ A61N *1/36*
U.S. Cl. 128—421 15 Claims



1. A transcutaneous nerve stimulating device which eliminates the phenomenon of accommodation, comprising

a pulse generator means for generating a plurality of pulses, interconnected amplitude, pulse width, and rate modulation control means, which cause the amplitude, pulse width and rate of the generated pulse to vary in a prescribed

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manner, said amplitude control means interacting with said pulse width control means such that a change in the pulse amplitude will effect an inverse change in the pulse width, with pulse width decreasing when pulse amplitude increases and with pulse width increasing when pulse amplitude decreases, said rate modulation control means acting independently of the relationship between said amplitude control means and pulse width control means to modulate the rate of the pulse generated, and

means for carrying said pulses to tissue engaging electrodes.

4,759,369
PULSE OXIMETER

Andrew C. Taylor, Whitland, Wales, assignor to Novametrix Medical Systems, Inc., Wallingford, Conn.

Filed Jul. 7, 1986, Ser. No. 882,726

Int. Cl.⁴ A61B *5/00, 6/00*

U.S. Cl. 128—633 3 Claims

1. In a pulse oximeter for measuring oxygen saturation in the blood of a person comprising means for directing light having a first wave length toward a tissue surface and the blood carried thereunder; means for directing light having a second wave length toward said tissue surface and said blood; and means for sensing said light of first and second wave lengths after its intensity has been affected by the color of the blood and for producing an electrical signal with a magnitude that is a function of the color of the blood and the pulse of said person, said signal being separable into a constant component and a time varying component; and means responsive to said electrical signal for determining a numerical measurement of oxygen saturation, the improvement comprising:

charge storage means for blocking said electrical signal constant component and having an input terminal to which said electrical signal is applied and an output terminal at which there is produced an output signal having a wave form corresponding substantially to that of only said time varying component and substantially independent of said constant component;

first calculating means operatively connected to said charge storage means and to said sensing means for calculating a ratio as a function of said time varying component and constant component,

said determining means including memory means having stored therein at assigned addresses ratios corresponding to predetermined oxygen saturation levels, and second calculating means operatively connected to said first calculating means for calculating oxygen saturation as a function of the address in said memory means having a stored ratio with a predetermined relationship to said calculated ratio

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4,759,370
OPHTHALMOTONOMETER

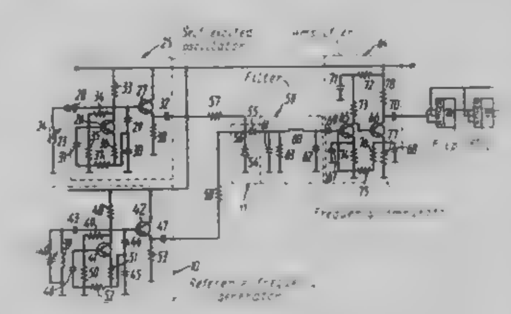
Mikhail P. Kozin; Jury I. Sakharov, both of Kuibyshev, and Svyatoslav N. Fedorov, Moscow, all of U.S.S.R., assignors to Kuibyshevsky politekhnitchesky Institute Moskov Nauchno-issledovatelsky Institute Mikrokhirurgii glaza, Moscow, U.S.S.R.

Filed Feb. 20, 1987, Ser. No. 17,770

Claims priority, application U.S.S.R., Feb. 25, 1986, 4023145

Int. Cl.⁴ A61B *3/16*

U.S. Cl. 128—645 1 Claim



1. An ophthalmotonometer, comprising:

a reference-frequency generator having an output;

a frequency-output transducer of linear motions which correspond to intraocular pressure having an electric output;

a frequency comparator having a first input connected to aid output of said reference-frequency generator, a second input connected to said electric output of said frequency-output transducer, and an output at which a signal is shaped proportional to a difference between frequencies of the signals produced by said reference-frequency generator and said frequency-output transducer;

a difference-frequency divider having an input connected to said output of said frequency comparator, and an output;

a circuit for measurement of the cycle of difference-frequency oscillations having a first input connected to said output of said difference-frequency divider, a second input connected to said output of said reference-frequency generator, and an output at which a signal is shaped corresponding to intraocular pressure in millimeters of mercury; and

a measurement results registration circuit having an input connected to said output of said measurement circuit

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4,759,371
IMPLANTABLE, CALIBRATEABLE MEASURING INSTRUMENT FOR A BODY SUBSTANCE AND A [redacted]

Manfred Franetzki, Uttenreuth, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 1, 1987, Ser. No. 44,608

Claims priority, application Fed. Rep. of Germany, May 2, 1986, 3614821

Int. Cl.⁴ A61B *5/00*

U.S. Cl. 128—653 18 Claims

1. An implantable measuring instrument for a body substance, comprising:

an implantable housing having a first recess therein covered by a semi-permeable membrane which admits a selected body substance therethrough;

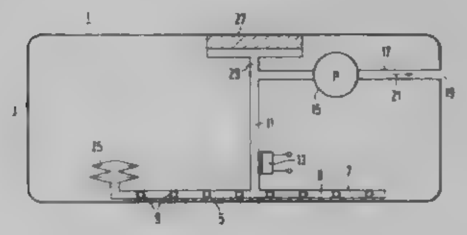
a channel in fluid communication with the volume between said recess and said membrane;

measuring means communicating with said channel for measuring said selected body substance;

a conveying means for circulating fluid containing said body substance along said measuring means and having an output connected to an output path;

an expandable storage means in fluid communication with said volume between said membrane and said recess;

a second recess in said housing in fluid communication with said measuring means; and



a pierceable, resealable septum covering said second recess adapted for the introduction and withdrawal of a cannula therethrough.

4,759,372
[redacted]

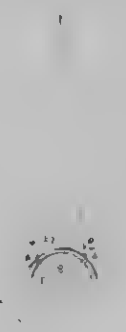
Shinichiro Umemura; Hiroshi Ikeda, both of Hachiouji; Kageyoshi Katakura, Naka; Toshio Ogawa, Itsukaichi, and Shinichi Kondo, Kodaira, all of Japan, assignors to Hitachi Medical Corp. and Hitachi Ltd., both of Tokyo, Japan

Filed Oct. 8, 1986, Ser. No. 916,791

Claims priority, application Japan, Oct. 9, 1985, 60-223608

Int. Cl.⁴ A61B *10/00*

U.S. Cl. 128—660 6 Claims



1. In a convex array ultrasonic probe comprising a probe member having a tip and an ultrasonic transducer consisting of a plurality of ultrasonic wave transducer elements with a predetermined pitch aligned adjacent to each other along a convexity in a direction of transmission of an ultrasonic wave, the ultrasonic transducer being provided at the tip of said probe member, the improvement comprising the arrangement in which the curvature radius R of said convexity is set at not greater than 12 mm, and the predetermined pitch or physical spacing of adjacent transducer elements is set at not greater than (7/6)·(Δ/Y) of said curvature radius R, wherein Δ represents the lateral resolution or half-power beam width of transmission and reception which is required of said ultrasonic probe in the vicinity of a focal point, and Y represents the distance between the probe and said focal point, the ratio of Δ/Y being set at not greater than 1/35.

[redacted]
[redacted]

Yasuhito Takeuchi, Tokyo, Japan, assignor to Yokogawa Medical Systems, Limited, Tokyo, Japan

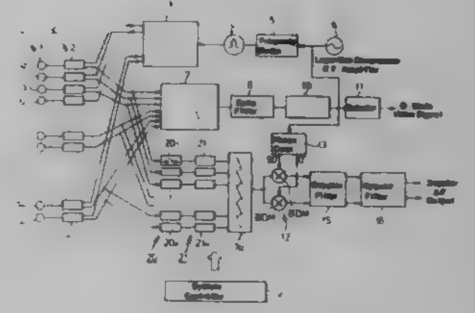
PCT No. PCT/JP86/00495, § 371 Date May 18, 1987, § 102(e) Date May 18, 1987, PCT Pub. No. WO87/01925, PCT Pub. Date Apr. 9, 1987

PCT Filed Sep. 26, 1986, Ser. No. 57,969

Claims priority, application Japan, Sep. 27, 1985, 60-213789

Int. Cl.⁴ A61B *10/00*

U.S. Cl. 128—663 2 Claims



1. An ultrasonic pulse Doppler apparatus comprising

an ultrasonic probe (1) having an array of a plurality of oscillation elements for transmitting ultrasonic beams in a predetermined direction into an object under examination and for receiving echo signals from within said object;

drive means (2,3,4,5,6) for sequentially supplying to said respective plurality of oscillation elements a plurality of drive pulse signals having phases which correspond to the [redacted] the respective oscillation elements;

a plurality of gate means (20) connected to respective ones of said plurality of oscillation elements for effecting range gating on a wavefront of respective received echo signals from respective ones of said plurality of oscillation elements to provide range gated echo signals;

a plurality of pulse stretching filter means (21) connected to respective ones of said plurality of gate means for extending the time duration of the respective range gated received echo signals and for storing their energies and for producing a plurality of pulse stretched output signals;

phasing/adding means (7*a*) connected to said plurality of filter means for acting on all of the pulse stretched output signals from said filter means during a particular length of time common to all of said pulse stretched output signals to match phases of said plurality of pulse stretched output signals and for adding all thereof and for producing an output signal corresponding to said stretched output signals;

detection means (12) connected to said phasing/adding means for effecting coherent detection of said output signal from said phasing/adding means and for producing a detected output signal; and

Doppler signal generating means connected to said detection means for generating a Doppler signal on the basis of said detected output signal from said detection means.

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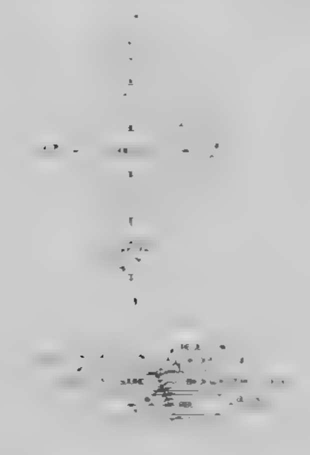
4,759,374

NON-INVASIVE BLOOD FLOW MEASUREMENTS UTILIZING CARDIAC CYCLE SYNCHRONIZATION

Catherine M. P. Kierney, and Gustavus H. Zimmerman, III, both of Westmont, Ill., assignors to American Telephone and Telegraph Company and AT&T Bell Laboratories, Murray Hill, N.J.

Filed May 6, 1985, Ser. No. 730,456
Int. Cl.⁴ A61B *10/00*
U.S. Cl. 128—663 23 Claims

MICROFICHE APPENDIX INCLUDED
(5 Microfiche, 45 Pages)



1. A blood flow analysis system for measuring velocity of blood moving within internal patient structures, comprising:

means for transmitting ultrasonic frequency acoustic signals into said patient structures;

means for receiving reflected acoustical echo signals from blood flows within said structures;

means for determining signals representing the difference between said transmitted and said received signals;

means for sampling the difference signals;

means for determining the start and end of said patient's cardiac cycle in response to the patient's electrocardiogram signals;

means responsive to the determined start and end of said patient's cardiac cycle and said sampled difference signals for dividing said sampled difference signals into a predefined plurality of time segments of signals each representing the same amount of time of said segment plurality with the total amount of time equal to one cardiac cycle;

means for autoregressive spectrum analyzing each of said time segments of said sampled difference signals to determine the power spectrum of said sampled difference signals for each of said time segments; and

means responsive to the determined power spectrum of each of said time segments for determining the blood velocity within said internal patient structures indicating blood flow.

4,759,375

ULTRASONIC DOPPLER DIAGNOSTIC APPARATUS

Kouroku Namekawa, Tokyo, Japan, assignor to Aloka Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1986, Ser. No. 947,027
Claims priority, application Japan, Dec. 26, 1985, 60-292109; Dec. 26, 1985, 60-292112
Int. Cl.⁴ A61B *10/00*
U.S. Cl. 128—663 8 Claims

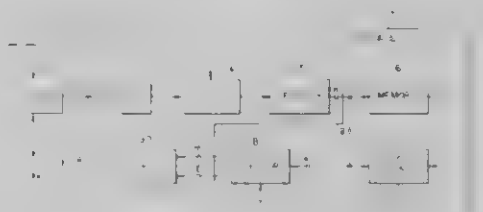
1. An ultrasonic Doppler apparatus for providing data for diagnosis of the the distance and velocity of a moving member within a subject, comprising:

means for transmitting an ultrasonic pulse beam of a given fixed pulse recurrence frequency into said subject and for receiving said beam after reflection therein;

scanning means for sector scanning said ultrasonic pulse beam in at least two successive directions, each of said successive directions being separated by a minute deflection angle therebetween;

means coupled to said transmitting and receiving means for deriving from said received beam at least first and second velocity distribution signals corresponding to at two of said successive directions, said velocity distribution signals being representative of the velocity of said moving members;

memory means responsive to said velocity distribution deriving means for storing a first velocity distribution signal from among said distribution signals;



tangential velocity calculating means responsive to said memory means and to said velocity distribution deriving means, including means for comparing said stored first velocity distribution signal with a next velocity distribution signal of said at least first and second distribution signals corresponding to a first and next of at least two successive directions, and means responsive to said comparing means and to a signal representative of said minute deflection angle for calculating a velocity distribution component in a direction tangential to an arc of a scanned sector defined by said first and next directions, and for providing an output thereof;

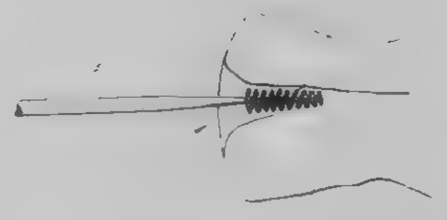
whereby said tangential velocity component distribution output is representative of at least one dimension of image data for diagnosis of the distance and velocity of said moving members.

4,759,376

ENDOCERVICAL SAMPLING BRUSH AND SMEAR METHOD

Nils Stormby, Stadiongatan 65, 20074 Malmo 20, Sweden

Continuation of Ser. No. 815,766, Jan. 2, 1986, abandoned, which is a continuation of Ser. No. 614,487, May 29, 1984, abandoned. This application Apr. 16, 1987, Ser. No. 38,947
Int. Cl.⁴ A61B *10/00*
U.S. Cl. 128—756 22 Claims



1. A brush assembly for use in connection with cell sampling from the endocervical canal and for smearing the gathered cells onto a glass slide to be used in analysis by the Papanicolaou technique, comprising:

an elongated handle shaft having opposite ends; and

an elongated brush directly attached to one of said ends of said handle shaft concentrically with the shaft,

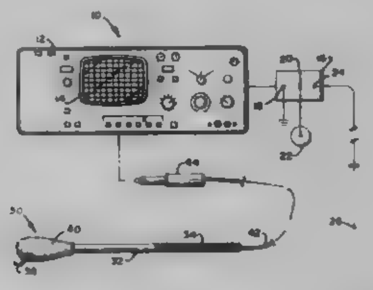
wherein said brush extends from said one end of the handle shaft over a length ranging from 15 to 20 mm, said brush is cone-shaped and decreases from a major diameter at said one end of the handle shaft ranging from 7.0 to 7.5 mm to a minor diameter ranging from 3.0 to 5.4 mm, and said brush comprises approximately 600 flexible bristles made of nylon, each of said bristles having a diameter of approximately 0.06 mm and a stiffness characterized by a tangent modulus of 630,000 ± 260,000 psi.

4,759,377

APPARATUS AND METHOD FOR MECHANICAL STIMULATION OF NERVES

Dennis D. Dykstra, Eagan, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Nov. 26, 1986, Ser. No. 935,267
Int. Cl.⁴ A61B *5/04*
U.S. Cl. 128—733 5 Claims



4. A method for determining sacral reflex latency in a patient, comprising the steps of:

providing an electromyograph with a display;

connecting a first electrode to the patient to provide a reference signal;

connecting a second electrode to the external urethral sphincter of the patient to sense response and generate a reflex signal, said electromyograph being responsive to said first and second electrodes;

selectively mechanically stimulating the pudendal nerve of the patient; and

triggering timed sweeps of the display in said electromyograph upon mechanical stimulation to record the reflexive response sensed by said second electrode on the electromyograph.

4,759,378

FLEXIBLE TIP CARDIAC PACING CATHETER

David L. Swendson, Garden Grove; Edward E. Elson, Anaheim; Clement Lieber, Yorba Linda, and Michael D. Rold, Costa Mesa, all of Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

Continuation of Ser. No. 434,318, Oct. 14, 1982, abandoned. This application Mar. 18, 1986, Ser. No. 844,213
Int. Cl.⁴ A61N *1/04*
U.S. Cl. 128—786 24 Claims

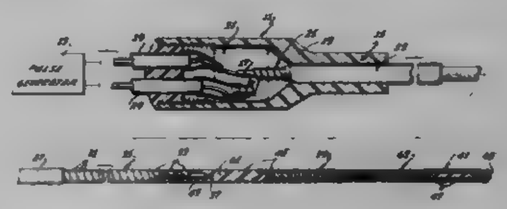
1. A flexible tip pacing catheter adapted for insertion into the heart for electrically stimulating the heart comprising:

an elongated body having an elongated passage therein;

an elongated wire conductor;

means for fixing the elongated wire conductor to said elongated body with the conductor being partially in said passage, a first section of said wire conductor lying at least partially within said passage of said body and being straight, said elongated wire conductor having a distal end portion outside of said passage which is flexible and resilient along its length, said catheter having a distal end and an outer periphery, said distal end portion terminating substantially at the distal end of the catheter;

said flexible resilient distal end portion including a flexible electrode outside said body and exposed at the outer periphery of the catheter whereby current can be passed between said electrode and the heart;



said distal end portion of said wire conductor having a distal section closely adjacent the distal end of the catheter which is more flexible than a location on the distal end portion which is spaced proximally from the distal section; and

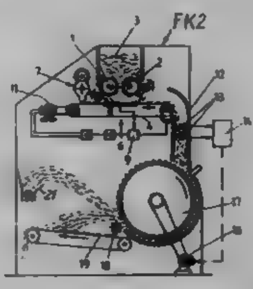
a region of said wire conductor being wound into a coil to form said distal section, said location and at least a part of said flexible electrode.

4,759,379

METHOD AND APPARATUS FOR REGULATING THE PERMEABILITY OF CIGARETTE WRAPPERS AND THE LIKE

Heinz-Christen Lorenzen, Wentorf, Fed. Rep. of Germany, assignor to Körber AG, Hamburg, Fed. Rep. of Germany

Filed Jun. 18, 1986, Ser. No. 875,710
Claims priority, application Fed. Rep. of Germany, Jun. 26, 1985, 3522752
Int. Cl.⁴ A24C *5/60*
U.S. Cl. 131—281 41 Claims



1. A method of regulating the permeability of wrappers of cigarettes or other rod-shaped articles of the tobacco processing industry, comprising the steps of forming and transporting a continuous rod-like filler containing fibrous material; continuously and automatically monitoring the filling power of fibrous material which is used to form the filler or the hardness of the filler and generating first signals denoting the monitored filling power or hardness; draping the filler into wrapping material; regulating the mass of fibrous material in the filler as a function of said first signals so as to maintain the hardness of the filler at a predetermined value; monitoring the mass of fibrous material in the filler and generating second signals denoting the mass per unit length of the filler; perforating the wrapping material; and utilizing said second signals to adjust said perforating step.

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4,759,380

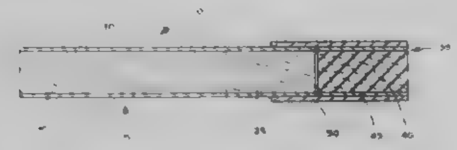
FILTER CIGARETTE HAVING SEGMENTED SECTIONS

Alan B. Norman, Clemmons; Thomas A. Perfetti, Winston-Salem; Barry L. Saintsing, and Kenneth W. Swicegood, both of Lexington, all of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Nov. 3, 1986, Ser. No. 926,292

Int. Cl.⁴ A24D *1/00, 1/04*

U.S. Cl. 131—364 **16 Claims**



1. A smoking article in the form of a filter cigarette having in combination (i) a rod having smokable material contained in a circumscribing wrapping material, and having the two ends thereof open to expose the smokable material, (ii) a filter element axially aligned in an end-to-end relations hip adjacent one end of the rod; and (iii) tipping material circumscribing and being fixedly attached to both the filter element and the rod in a region adjacent the filter element;

- (a) the rod having two segments of smokable material therewithin, each segment being defined by its composition, wherein the first segment is disposed at the end of the rod which is to be lit and the second segment is disposed at the end of the rod adjacent the filter element and the first and second segments are aligned in an abutting end-to-end relationship, and wherein each of the first and second segments has a substantially uniform composition in the region along the longitudinal axis of the rod and across the rod in a plane perpendicular to the longitudinal axis thereof,
- (b) the filter element and the region of the rod adjacent the filter element being circumscribed by tipping material such that the tipping material overlies at least a portion of the second segment of smokable material, and the second segment extends up to about 20 mm beyond the foremost point which the tipping materials extends,
- (c) the filter element and the second segment of smokable material having a combined longitudinal length of up to about 60 percent of the total length of the smoking article, and the first segment extending about 40 percent or more of the total length of the smoking article, and
- (d) the smokable material of the first segment being of a higher quality than the smokable material of the second segment.

4,759,381

TOOTHBRUSH WITH TOOTHPASTE CONTAINER

Giuseppe Cesari, Via Nani no. 17, Bologna, Italy

Filed Jun. 4, 1986, Ser. No. 870,487

Claims priority, application Italy, Jun. 4, 1985, 4919/85[U]

Int. Cl.⁴ A45D *44/18*

U.S. Cl. 132—84 B **1 Claim**

1. In a toothbrush connected with a toothpaste container containing toothpaste therein for dispensing on the toothbrush, the improvement wherein

- said container comprises an elongated hollow container body having one open end, a closing component at and closing said one end of the container body, a dispenser at an other end, a rod being slidably inserted through said closing component into said container body, and a piston disposed slidably sealingly inside said container body defining space for the toothpaste between said piston and said dispenser, the piston being mounted on said rod so as to be movable only in one-way movement toward the dispenser at the other end of the container body pushing the toothpaste in said space in the container body through said dispenser when said rod is pushed toward said dispenser,
- said toothbrush adjacent one end thereof is releasably hinged adjacent said one end of the container body,
- said toothbrush has bristles at the other end of the toothbrush, said bristles have free ends which are located oppositely facing and adjacent said dispenser when the toothbrush is in a closed position against said container, the latter forming a container case for the toothbrush to be disposed therein in said closed position, and said bristles are located away from said dispenser when the toothbrush is in an open position out of said container case,
- said closing component substantially completely closes said one end of the container body and is mounted releasably and complete removable from, and thereby opening, said one end of the container body for easy access to the inside as well as said other end of the container body through the open said one end, said closing component has a resilient, substantially cylindrical portion and resilient claws, the latter releasably engaging into notches formed in an inside wall surface of the container body adjacent said one end, said resilient cylindrical portion being pressable so as to disengage said resilient claws for releasing and removing said closing component from said one end of the container body,
- said rod has a button at said one end pushable by a person's finger toward the dispenser, said button being slidably mounted in said cylindrical portion of said closing component, said cylindrical portion having an open end through which said button projects,
- spring means mounted between said closing component and said button biasing the latter in a direction away from said dispenser,
- said rod on opposite sides is formed with a saw-toothed edge forming a plurality of teeth,
- said piston comprises an annular central support portion spaced apart from an inside wall surface of the container body and spaced apart from said rod,
- said piston comprises an annular tooth-fin section facing said one end of the container body and connected to said central support portion by spaced-apart tabs, said tooth-fin section has a central opening forming with a single tooth pointing toward said one end of the container body and complementarily engaging respective of said teeth of the rod in such manner as to push the piston when the button is pushed toward the dispenser, and said tooth-fin section at its periphery has flexible fins with curved ends, the latter at a curving portion thereof slidingly sealingly engaging against said inside wall surface of the container body, said fins pointing substantially toward said one end of said container body,
- said piston further comprises a diaphragm piston section facing the other end of said container body, said diaphragm piston section having at its periphery flexible diaphragm lips with points substantially pointing toward said other end of said container body, said points slidably engaging said inside wall surface, said diaphragm piston section further comprising inner lips pointing toward said other end of said container body and slidably engaging said rod and said teeth of said rod,

- said dispenser is elastic and openable so as to dispense toothpaste therethrough directly onto the free ends of said bristles when the toothbrush is in said closed position in said container case when pushing the button and respectively closable when the button is released.

4,759,382

SYSTEM OF HOT AND IMMEDIATE WATER FOR TAPS-WATER AND ENERGY SAVING

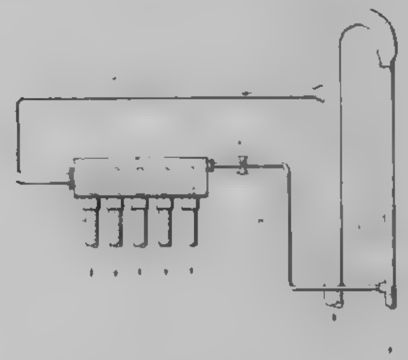
Zeev Harel, Barla 30, Tel Aviv, Israel

Filed Apr. 13, 1987, Ser. No. 37,539

Claims priority, application Israel, Apr. 20, 1986, 78547

Int. Cl.⁴ E03C *1/02*

U.S. Cl. 137—564 **1 Claim**



1. Hot water distribution means adapted to be connected as a part of a system for continuously supplying hot water to a plurality of outlet taps, the system being of the type having a supply pipe with continuously circulating hot water, including a supply port and a return port, the distribution means comprising first and second main pipes, said second main pipe being located within said first main pipe, means for connecting said first main pipe to the supply port, means for connecting said second main pipe to the returnport, a plurality of distribution pipes connecting different ones of the taps with said distribution means, each of said distribution pipes comprising first and second branch pipes, said second branch pipe being situated within said first branch pipe, means for connecting said first branch pipe between said first main pipe and one of said taps, said second branch pipe being shorter than said first branch pipe such that hot water continuously circulates from said first main pipe, along said first branch pipe, through said second branch pipe and into said second main pipe, when said one of said taps is closed.

4,759,383

TOOTHBRUSH STERILIZING DEVICE

Lucille Phillips, 12217 Iredell St., Studio City, Calif. 91601

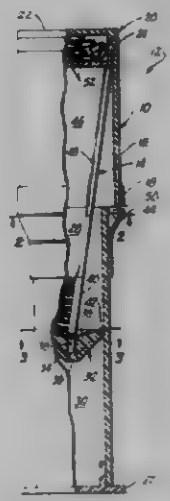
Filed Feb. 20, 1987, Ser. No. 17,323

Int. Cl.⁴ B08B *3/04*

U.S. Cl. 134—93 **6 Claims**

1. A toothbrush sterilizing device which includes:

- an elongated generally tubular housing having an upper end and a lower end
- dividing wall means for allowing a sterilizing fluid located within said housing above said dividing wall means to slowly flow downwardly past said dividing wall means and for supporting the brush end of a toothbrush so that said brush end is contacted by sterilizing fluid flowing past said dividing wall means, said wall means dividing said housing into a top compartment located above said wall means and a bottom compartment located below said wall means,
- said upper end being open so as to be capable of having a liquid located therein,
- said dividing wall means comprises a sloping bottom wall, said bottom wall having one or more bottom openings leading through there so as casrry sterilizing fluid flowing from said top compartment to said bottom compartment, said dividing wall means also including vent means for preventing air from being trapped in said bottom compartment,
- said vent means in located in said sloping wall adjacent to the top thereof and leads between said top and said bottom compartments.



4,759,384

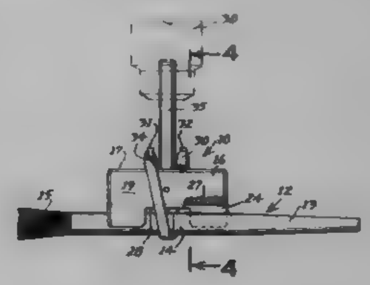
APPARATUS FOR SPIN-CLEANING SLENDER PAINT BRUSHES

Peter A. Kliewer, 691 Candlestick Rd., Nashville, Tenn. 37211

Filed Jun. 2, 1987, Ser. No. 57,590

Int. Cl.⁴ B08B *3/04*

U.S. Cl. 134—140 **3 Claims**



1. An apparatus for attachment to a rotary drive member for spin-cleaning a slender paint brush, including an elongated handle member having a brush at one end and a middle portion of generaly uniform cross-section, comprising:

- (a) an elongated holder body having a face surface, an opposed back surface, opposed sides, opposed end portions, and a longitudinal axis,
- (b) a pair of longitudinally spaced V-shaped recesses formed in said face surface and longitudinally aligned with each other and said longitudinal axis,
- (c) said V-shaped recesses opening outward through said face surface and having corresponding coplanar walls which intersect along a common vertex line parallel to said longitudinal axis,
- (d) a transverse slot formed transversely through said face surface and said opposite sides and occupying the spacing between said V-shaped recesses, the depth of said trans-

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verse slot being substantially as great as the depth of said V-shaped recesses,

(e) said V-shaped recesses being adapted to receive the middle portion of an elongated slender paint brush in longitudinal alignment with said V-shaped recesses in an operative position,

(f) an elongated, flexible, elastic, endless band having opposite looped end portions, said band being long enough to extend transversely across the middle portion of a slender paint brush in said transverse slot, when said paint brush is received in said V-shaped recesses in said operative position,

(g) an elongated spindle projecting from said back surface, said spindle having an elongaed rotary axis perpendicular to said vertex line and being adapted to be rotatably driven by a rotary drive member,

(h) a pair of fastener pins fixed to and projecting outward from said back surface parallel to and in a balanced position relative to said spindle, and

(i) said looped end portions of said elastic band being adapted to be looped around any of said fastener pins when said elastic band is extended across said slender paint brush in said operative position to retain said slender paint brush in said V-shaped recesses when said holder body is rotated about said rotary axis.

4,759,385

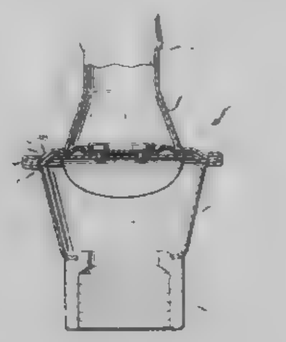
LOW INERTIA CHECK VALVE

Sharon J. Hudson, Jr., Lambertville, Mich., assignor to Sharon Manufacturing Company, Lambertville, Mich.

Filed Jun. 29, 1983, Ser. No. 508,824

Int. Cl.⁴ F16K *15/14*

U.S. Cl. 137—512.15 29 Claims



1. A low inertia check valve comprising: a canister member with a diverging circular sidewall defining an input chamber, said input chamber having an annular valve seat on its said large end; another canister member with a converging circular sidewall defining an output chamber; said members being disposed with their large ends in confronting relationship; means for sealingly connecting said canister members together in this relationship; and a diaphragm support assembly disposed between said members, said diaphragm support assembly including an elastomeric diaphragm, a diaphragm limiter on the output chamber side of said diaphragm, a diaphragm retainer on the input side of said diaphragm and means for fastening said diaphragm support assembly components together, causing a central portion of said diaphragm to be compressed between said retainer and said limiter an amount sufficient to bias outer portions of said diaphragm toward said seat.

4,759,386

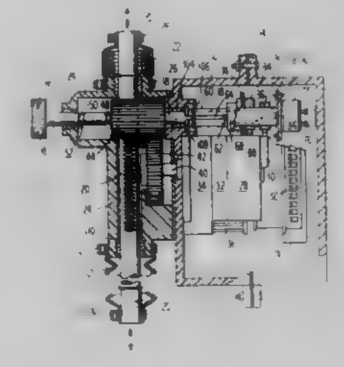
ELECTROMECHANICAL LINEAR ACTUATOR

Albert V. Grouw, III, North Haledon, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Jan. 20, 1987, Ser. No. 4,730

Int. Cl.⁴ F16K *37/00*

U.S. Cl. 137—554 20 Claims



1. An actuator for the control of a device by linear motion imparted thereto from said actuator comprising:

a motor having a drive shaft, and means for supplying power to said motor for rotation of said drive shaft,

gear means rotating in response to rotation of said drive shaft,

pinion means for engaging said gear means and rotating in response to rotation of said gear means,

a rack for engaging said pinion means and moving linearly in response to rotation of said pinion means,

a knob and a knob shaft, said knob, said knob shaft and said pinion means being in aligned secured together relationship for manually disengaging said pinion means from said gear means while simultaneously removing said supply of power to said motor and for constantly maintaining engagement of said pinion means with said rack whereby rotation manually of said knob causes said rack to move linearly.

4,759,387

PULSATION ABSORBING DEVICE

Edward Arendt, Palatine, Ill., assignor to Wilkes-McLean, Ltd., Barrington, Ill.

Filed Apr. 10, 1987, Ser. No. 37,027

Int. Cl.⁴ F15B *1/04*

U.S. Cl. 138—30 12 Claims

1. A pulsation absorbing device, comprising:

a pressure vessel having a resilient diaphragm mounted therein;

inlet means associated with one end of said pressure vessel and outlet means associated with the other end of said pressure vessel;

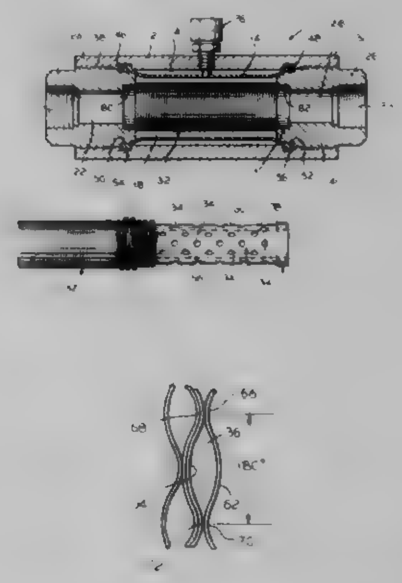
spool means mounted within said pressure vessel inwardly of said resilient diaphragm, said spool means being disposed intermediate and in communication with said inlet means and said outlet means to carry fluid from said inlet means to said outlet means, said spool means and said resilient diaphragm defining a pressure chamber therebetween;

said spool means having a plurality of openings therethrough and said pressure chamber being in fluid communication with fluid carried from said inlet means to said outlet means through said openings in said spool means; [illegible]

a helical wave band disposed on said spool means to accommodate flow through said openings in said spool means, said helical wave band defining a plurality of helically spaced flow accommodating openings, at least some of

said flow accommodating openings of said helical wave band being in direct fluid communication with said openings in said spool means;

said helical wave band being formed from a spring material having substantially regularly spaced and alternately crests and troughs in a plane substantially perpendicular to



the longitudinal axis of the spool means with axially adjacent crests in alignment said troughs being axially adjacent and in contact with each other, said axially adjacent crests defining said flow accommodating openings and being compressible to reduce the spacing therebetween, said flow accommodating openings being of variable size depending upon compression of said helical wave band.

4,759,388

REINFORCED ACRYLIC RUBBER HOSE

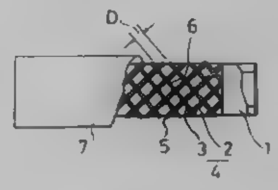
Kazuhiko Kiyama, Ama, and Koichi Takano, Ichinomiya, both of Japan, assignors to Toyoda Gosei Co., Ltd., Nishikasugai, Japan

Filed Jan. 13, 1987, Ser. No. 2,921

Claims priority, application Japan, Jan. 17, 1986, 61-008439

Int. Cl.⁴ F16L *11/08*

U.S. Cl. 138—130 4 Claims



1. A reinforced acrylic rubber hose comprising:

an inner tube of acrylic rubber;

a reinforcement ply including lower yarns spirally wound on the outside surface of said inner tube that the size of mesh will be 0.5 mm or more, the upper yarns spirally wound on said lower yarns, the elongation percentage of said lower yarns being 1.1 to 3 times the elongation of said upper yarns and the strength of said upper yarns being 1.1 to 3 times the strength of said lower yarns; and

an outer tube of acrylic rubber laminated over said outside surface of said inner tube through said reinforcement ply, said inner tube and said outer tube being directly bonded at least by vulcanization through meshes of said reinforcement ply, using a crosslinking agent of an acrylic acid derivative or a methacrylic acid derivative, having any one of a carboxyl group, an epoxy group, and chlorine atoms.

4,759,389

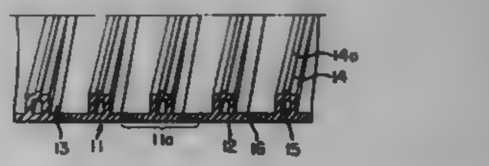
SYNTHETIC RESIN PIPE FOR UNDERGROUND INSTALLATION

Kim Woo Suck, 699-11, Yeonsan-dong, Tongrae-gu, Pusan, Rep. of Korea

Filed Dec. 4, 1986, Ser. No. 937,737

Int. Cl.⁴ F16L *11/08*

U.S. Cl. 138—154 1 Claim



1. A pipe for underground installatin comprising a plurality of successive courses of wound synthetic resin strip joined to form an elongated pipe, each said synthetic resin strip course having a protruding reinforcing rib and two lateral extents, said reinforcing rib having a hollow center, said rib extending radially inwardly of said pipe and lateral extents of adjacent courses of said strip being joined to form a smooth, continuous outer pipe surface and an inner pipe wall adjacent said ribs, said lateral extents terminating in steps, said steps being overlapped in such joinder, said reinforcing ribs being rectangular in shape and having a top, two sides and a bottom, each said rib having a protrusion on the top thereof.

4,759,390

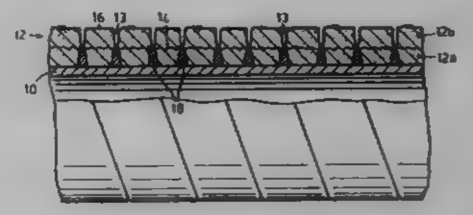
COATED METAL PIPE HAVING BENDING CAPABILITY

Harold F. Jarvis, Moffat, and Frederick S. Gelfant, Thornhill, both of Canada, assignors to Shaw Industries Ltd., Ontario, Canada

Filed Nov. 25, 1986, Ser. No. 934,840

Int. Cl.⁴ F16L *9/16*

U.S. Cl. 138—175 8 Claims



1. A metallic pipe having a protective coating consisting essentially of an inner, water-impermeable corrosion barrier layer bonded to the pipe surface and an outer, water-permeable layer of impact-resistant and penetration-resistant cladding material, said cladding material having a layer of mesh reinforcing material embedded therein defining inner and outer layer portions, characterized in this, that said outer layer portion is helically slotted substantially to the depth of said reinforcing layer, and said inner layer portion incorporates a helically extending zone of of a material having a lower compressive strength than said cladding material, said helically extending zone extending substantially to the reinforcing layer and being radially aligned with the helical slot of said outer portion throughout its length.

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4,759,391

TWO LAYER PAPERMACHINE EMBOSSING FABRIC WITH DEPRESSIONS IN THE UPPER FABRIC LAYER FOR THE PRODUCTION OF TISSUE PAPER

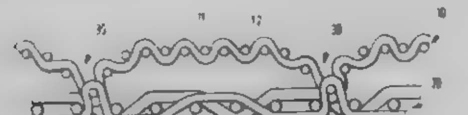
Hartmut Waldvogel, and Georg Borel, both of Reutlingen, Fed. Rep. of Germany, assignors to Wangner GmbH & Co. KG, Reutlingen, Fed. Rep. of Germany

Filed Jan. 9, 1987, Ser. No. 1,939

Claims priority, application Fed. Rep. of Germany, Jan. 10, [illegible]

Int. Cl.⁴ D21F *1/10;* **D03D** *11/00*

U.S. Cl. 139—383 A **7 Claims**



1. A papermachine fabric for the production of tissue paper comprising two fabric layers interconnected at a plurality of points including a coarse lower fabric layer and a fine upper fabric layer with each fabric layer comprised of woven transverse and longitudinal wires having an open area greater than thirty percent and with the upper fabric layer being interwoven with the lower fabric layer and being drawn into the lower fabric layer to form depressions in the upper fabric layer distributed in the manner of a pattern at the points of interconnection

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4,759,392

METHOD AND APPARATUS FOR THE CONTROL OF AUXILIARY NOZZLES FOR INSERTING WEFT THREADS IN WEAVING LOOMS

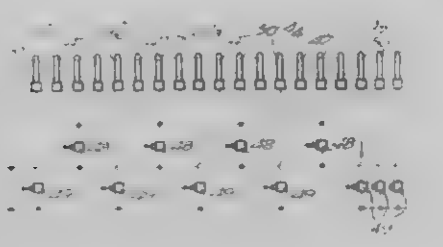
Philippe van Bogaert, Schaerbeek, and Dirk Maes, Zonnebeke, both of Belgium, assignors to Picanol N.V., Belgium

Filed Mar. 17, 1987, Ser. No. 26,688

Claims priority, application Netherlands, Mar. 20, 1986, 8600713

Int. Cl.⁴ D03D *47/30*

U.S. Cl. 139—435 **12 Claims**



8. In an auxiliary nozzle system for an air jet weaving loom including multiple air jet nozzles disposed along the shed of a loom and arranged to blow air from an air supply system into the shed area so as to guide and impel an inserted weft thread in and through the shed, the improvement comprising:
- said multiple nozzles arranged in at least two groups, the nozzles of each group being interspersed with the nozzles of the other group along the shed;
- one group of nozzles being arranged to create a first blowing action for a time period and at an intensity that essentially supports and guides an inserted weft thread across the shed, and the other group of nozzles being arranged to create a second blowing action superimposed over the first blowing action in local areas along the shed for a time period and at an intensity such that a pulling force is applied to an inserted weft thread in the direction of weft insertion across the shed by the second blowing action.

4,759,393

LOOM

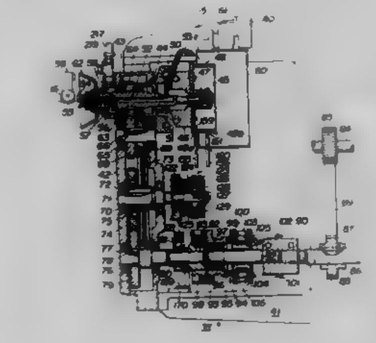
Takatsugu Kato, Tokyo, and Takao Takahashi, Hachioji, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Division of Ser. No. 686,702, Dec. 27, 1984, abandoned. This application Feb. 14, 1985, Ser. No. 701,631

Claims priority, application Japan, Dec. 28, 1983, 58-245211; Apr. 6, 1984, 59-67383

Int. Cl.⁴ D03D *47/34, 47/30, 51/00, 51/08*

U.S. Cl. 139—452 **12 Claims**



1. A loom comprising:
- a drum type weft reservoir having a drum on which a weft yarn is wound to be measured and reserved prior to weft picking, upon said reservoir being driven;
- a clutch through which said weft reservoir is drivably connected with a main shaft of the loom upon being engaged, said clutch being engageable at a predetermined operational phase of the loom;
- first means for detecting the state of said clutch to produce a signal representative of a disengaged state of said clutch;
- second means for detecting the operational phase of said weft reservoir to produce a signal;
- third means for driving said weft reservoir, upon being operated;
- a manually operated switch for producing a signal commanding weft yarn winding on said weft reservoir drum, upon being operated;
- fourth means for operating said third means for a predetermined time upon receiving the signal from said manually operated switch and the signal from said first means, upon being operated; and
- fifth means responsive to the signal from said second means to change over said clutch into its engageable state at a second timing substantially later than a first timing at which said predetermined operational phase has been reached, relative to a phase of said loom main shaft at loom starting, during operation of said fourth means.

4,759,394

STUMP CUTTING TOOTH STRUCTURE

Lyle J. Clemenson, Box 435, Osseo, Minn. 55369

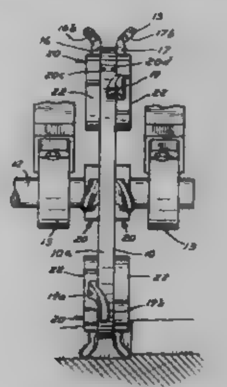
Filed Nov. 27, 1987, Ser. No. 126,471

Int. Cl.⁴ B27G *13/04;* **A01G** *23/06*

U.S. Cl. 144—235 **6 Claims**

1. a stump cutting tooth structure in connection with a rotatable blade, having in combination
- a tooth holder mounted at one side of a circular blade adjacent the periphery thereof,
- said holder having a flat face against said blade,
- said face of said holder having a slot therein radially of said blade, said slot having a bottom wall parallel to the adjacent wall of said blade,
- a cutting tooth having a shank portion and a cutting head portion,
- said shank portion being diposed into said slot,

- said head portion extending outwardly of said slot and radially of said blade,
- said head portion being angled transversely of said shank portion outwardly of said slot,
- said head portion being twisted axially of said shank portion,



- a cutting face formed at the leading tip portion of said cutting head portion,
- said cutting face being disposed to be at an angle obtuse to the direction of the cutting movement of said tooth, and
- means securing said tooth holder to said blade.

4,759,395

BEAD BREAKER FOR VEHICLE TIRES

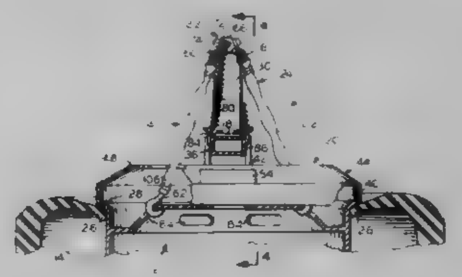
Kazuichi Tsukamoto, 63-38 Kitashinden, Ogawa machi, [illegible], Kumamoto, Japan ([illegible])

Filed May 27, 1987, Ser. No. 54,757

Claims priority, application Japan, Jun. 5, 1986, 61-131328; Mar. 20, 1987, 62-66984

Int. Cl.⁴ B60C *25/06*

U.S. Cl. 157—1.2 **7 Claims**



1. A bead breaker for vehicle tires, for the breaking loose of a tire bead from a wheel mounting that tire, comprising:
- a. a hydraulic jack member, having a base and an extendable head;
- b. a bead pressing assembly, which comprises:
  - a presser arm member, which is attached to said jack base, and which has arms extending outwardly in opposing directions;
  - a ring presser assembly, which includes two ring pressers, attached concentrically to each other so as to be reversible, one ring presser being of larger radius and the other ring presser being of smaller radius to permit application to two different sized wheels by reversing the ring presser assembly; each ring presser being of continuous circular shape so as to, when applied, press on the tire bead around the complete circumference of the wheel; and
  - means for removable joining of said ring presser assembly to said presser arm member to readily allow the ring presser assembly to be turned over to permit use of either the larger or the smaller ring presser as a bead breaker; and
- c. a plurality of tension members connected at one end to said jack head and an opposite end attachable to said wheel.

4,759,396

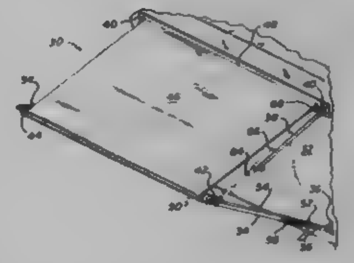
LOCK MECHANISM FOR ROLL BAR ON RETRACTABLE AWNING

Antony W. Quinn, Westminster, Colo., assignor to The Scott & Fetzer Company, Westlake, Ohio

Filed May 11, 1987, Ser. No. 48,404

Int. Cl.⁴ [illegible]

U.S. Cl. 160—66 **16 Claims**



1. In a retractable awning assembly having a roll bar about which a canopy can be rolled with the roll bar including a cylindrical surface, and a pair of support arms having one end operatively connected to an associated end of the roll bar and another end contacting a support surface, the improvement comprising,
- a lock mechanism cooperating with said cylindrical surface to selectively prevent rotation of the roll bar in either of two opposite directions, said lock mechanism being mounted in said awning assembly adjacent to said cylindrical surface whereby the cylindrical surface is rotated adjacent thereto,
- said lock mechanism including a lock element pivotal about a pivot axis and having spaced contact surfaces thereon adapted to be alternately engaged with said cylindrical surface, each contact surface being radially spaced from the pivotal axis of the lock element a greater distance than the distance from the pivotal axis to a point on the cylindrical surface which lies on a radius of the cylindrical surface passing through the pivotal axis whereby engagement in a first position of one contact surface with the cylindrical surface will prevent rotation of the roll bar in a first direction and engagement in a second position of the other contact surface with the cylindrical surface will prevent rotation of the roll bar in the opposite direction.

4,759,397

LOUVRE BLIND GUIDE CARRIAGE

Pierre Walther, Chatillon, Switzerland, assignor to Syba Han-[illegible] Vertriebs AG, Switzerland

Filed Mar. 13, 1986, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, Mar. 14, [illegible]

Int. Cl.⁴ E06B *9/26*

U.S. Cl. 160—166.1 **10 Claims**

1. A guide carriage for a louvre blind, comprising:
- a housing having end walls extending transversely of the direction of movement of said carriage;
- sliding or running elements disposed laterally on said housing for displacement of said carriage in a support rail;
- a bushing disposed within and fixed relative to said housing;
- a tubular bearing sleeve having opposed first and second ends, said sleeve being rotatably mounted in said bushing so as to rotate about an axis, said bearing sleeve having a

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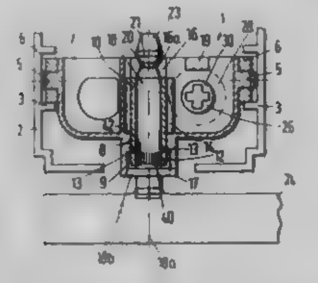
pinion portion and a detent portion including detent means, said detent means comprising at least two radial slots extending to said first end to define detent springs for yielding in response to radially outwardly directed forces and first and second opposing, oblique surfaces disposed on the inside of said sleeve on said springs for producing a radially outward force in response to forces applied to said oblique surfaces in either direction along said axis;

a worm gear rotatably mounted in openings in said end walls and meshing with said pinion portion of said bearing sleeve, said worm gear being formed with an opening shaped to receive a complementary turning shaft; and



a bearing pin rotatably mountable in and demountable from said sleeve for rotation about said axis and including: (i) detent engaging means for engaging said detent means of said bearing sleeve and for releasing engagement with said detent means solely in response to forces applied along said axis, said detent engaging means comprising a first end and a peripheral groove having facing first and second surfaces formed in said pin which receive said first and second oblique surfaces on said springs and which also apply an axial force to at least one of said first and second oblique surfaces on said bearing sleeve in response to an axial force applied to a said pin mounted in said sleeve to demount said pin from said sleeve; and (ii) a louvre holder disposed at a second end of said pin

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[illegible]

OPERATOR FOR VENETIAN BLINDS COMBINATION OPERATOR AND VENETIAN BLIND, AND METHOD OF OPERATING VENETIAN BLINDS

William C. Renée, 22722 Waterside La., El Toro, Calif. 92630

Continuation-in-part of Ser. No. 619,261, Jun. 11, 1984, abandoned. This application May 17, 1985, Ser. No. 735,797

Int. Cl.⁴ E06B *9/38*

U.S. Cl. 160—178.1 **14 Claims**

1. A venetian blind and venetian blind operating combination, comprising:

(a) a venetian blind,

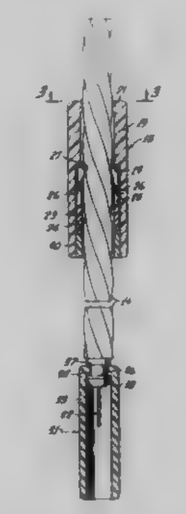
(b) an elongated wand connected, in free-hanging relationship, to a rotatable portion of the venetian blind in such manner that rotation of the wand about its longitudinal axis effects operation of the blind to tilt the slats thereof, said wand having helically-extending surface means,

(c) an operator body, and

(d) means on said operator body to effect both driving and resilient friction-drag engagement with said surface means,

said means (d) being such that said driving and resilient friction-drag engagement is effected at generally the same portion of said surface means,

said means (d) comprising at least one prong connected to said operator body and resiliently engaged with said surface means, said prong being integral with said body and being a prong-spring that flexes when engaged with said surface means, said flexing creating the resilient friction-drag engagement.



4,759,399

METHOD AND APPARATUS FOR PRODUCING HOLLOW METAL INGOTS

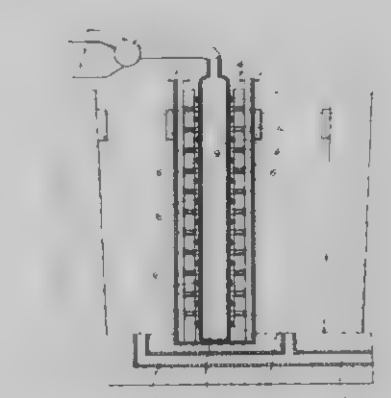
Kenji Saito; Yukio Oguchi, both of Chiba; Toshio Kato, Kurashiki; Hideshi Ohzu, Kurashiki; Kanji Aizawa, Kurashiki, and Minoru Yao, Kurashiki, all of Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed May 7, 1987, Ser. No. 47,625

Claims priority, application Japan, May 15, 1986, 61-111196; Jun. 18, 1986, 61-140279

Int. Cl.⁴ B22D *7/04, 27/04*

U.S. Cl. 164—126 **3 Claims**



1. A process for producing hollow metal ingots, which comprises the steps of placing, in a central portion of a mold, a cylindrical metallic core which is to be cooled by supplying a cooling fluid thereinto, pouring a molten metal into an annular casting space formed between the mold and the core, and solidifying the thus poured molten metal through cooling from inside and outside thereof, wherein the cooling fluid is directly blown upon an inner surface of the core while the cylindrical metallic core is allowed to be buckled.

3. An apparatus for producing hollow metal ingots, which comprises a mold placed on a stool, and a cylindrical core concentrically placed in a central portion of the mold to form an annular casting space therebetween, said core being constituted by an outermost metallic cylinder to be brought into contact with a molten metal, a cylindrical lattice-fashioned buckling-adjusting frame which is positioned in the metallic cyinder and gives openings as passages through which a cooling fluid is passed, and a cooling fluid vessel which is located in the buckling-adjusting frame and is provided with a number of cooling fluid-blowing nozzles.

[illegible]

BELT TYPE CAST SHEET CONTINUOUS CASTER AND PREVENTION OF MELT LEAKAGE IN SUCH A CASTER

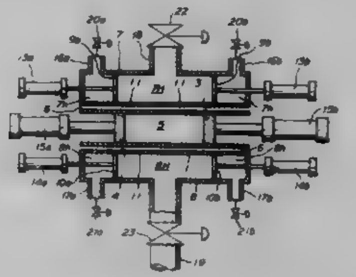
Nagayasu Bessho; Hirokazu Tozawa; Tetsuya Fujii; Tsutomu Nozaki; [illegible] Michio Suzuki; Nozomu Tamura, all of Chiba, and Tomoaki Kimura, Hitachi, all of Japan, assignors to Kawasaki Steel Corporation, Hyogo and Hitachi, Ltd., Tokyo, both of, Japan

Filed Oct. 1, 1986, Ser. No. 914,015

Claims priority, application Japan, Oct. 3, 1985, 60-219195; Jul. 17, 1986, 61-166728; Sep. 19, 1986, 61-219800

Int. Cl.⁴ B22D *11/06, 11/124*

U.S. Cl. 164—481 **11 Claims**



1. A cast sheet continuous caster of the type comprising a pair of opposed circulatorily movable belts, a pair of opposed side plates arranged along oppsoite side edge portions of the movable belts, coolers which each have numerous water feed openings and water discharge openings opened to the movable belt and are arranged behind the respective movable belts, said coolers each comprising a cooling header extending in a width direction of the movable belt, movable partition plates which are placed in the respective cooling headers, and drive means for moving the partition plates in the width direction of the movable belt, said movable belts and said side plates defining a casting space.

[illegible]

THREE FLUID HEAT EXCHANGER FOR COOLING OIL AND AIR WITH FUEL

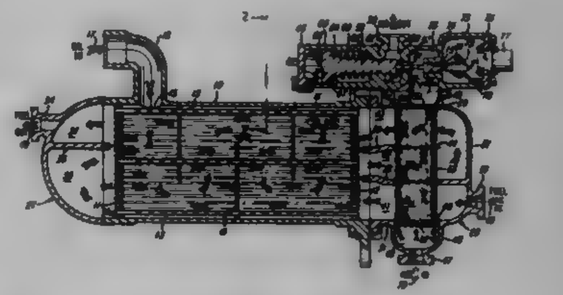
Robert R. Pfouts, Dayton; John E. Wunder, Kettering, and William [illegible], Jr., Vandalia, all of Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Division of Ser. No. 676,500, Nov. 29, 1984, Pat. No. 4,620,588. This application Jun. 4, 1986, Ser. No. 870,434

Int. Cl.⁴ G05D *23/00;* **F28F** *27/02;* **F02C** *7/06;* **F02G** *3/00*

U.S. Cl. 165—51 **5 Claims**

1. A three fluid heat exchanger, in a gas turbine engine environment in which cooled lubricating oil cools engine bearings and in which cooled compressor bleed air has a utility as a temporary substitute for cooled oil in the event of a loss of system oil pressure, the heat exchanger presenting first and second sections accommodating a movement of flowing fuel acting as a coolant, one of said sections having means providing a path for heated oil to flow in heat transfer relation to the relatively cooler fuel and the other having means providing a path for heated compressor bleed air to flow in heat transfer relation to the fuel, means containing said heat exchanger sections in a unitary structure including means providing for a continuing fuel flow therethrough in which fuel absorbs heat normally only in said one section and upon a loss of oil pressure only in said other section without, however, bypassing either section, the heated oil flow path being through said first heat exchanger section and the heated compressor bleed air path being through said second heat exchanger section, and oil pressure responsive means controlling the flow of compressor bleed air to allow for its flow through said second heat exchanger section to be normally denied, said oil pressure responsive means making a flow of compressor bleed air through said second heat exchanger section dependent upon a loss of lubricating oil pressure.



4,759,402

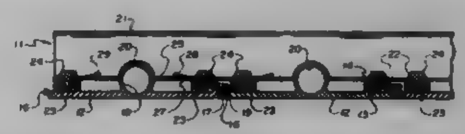
MODULAR CONSTRUCTION FOR RADIANT PANEL

Boris M. [illegible], Bountiful, Utah, assignor to Aero Tech Manufacturing Inc., North Salt Lake, Utah

Filed Aug. 17, 1987, Ser. No. 85,702

Int. Cl.⁴ [illegible]

U.S. Cl. 165—56 **9 Claims**



1. A radiant heat panel having a plurality of adjacent elongated modules joined together along their side edges and a plurality of transverse straight stiffeners across the back to stiffen the panel and hold said modules flat, characterized in that each stiffener is connected to said panel at a plurality of connection sites each of which is at or adjacent one of said side edges of said modules, and further characterized in that at only one of said connection sites there is provided a fixed connection comprising connection means securing said stiffener to said panel in a manner to block relative sliding movement thereat between said panel and said stiffener while at each of the other connection sites there is provided a non-fixed connection comprising a clamp holding said panel against said stiffener while being adapted to permit relative sliding movement between said stiffener and said panel at said connection site.

4,759,403

HYDRAULIC MANIFOLD FOR WATER COOLING OF MULTI-CHIP ELECTRIC MODULES

Ephraim B. Flint, Garrison, and Kurt R. Grebe, Beacon, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Apr. 30, 1986, Ser. No. 858,135

Int. Cl.⁴ H05K *7/20*

U.S. Cl. 165—80.4 **8 Claims**

1. A manifold for conducting coolant to a plurality of electric circuit chips having cooling devices connected thereto, the manifold comprising:

a body having a first and a second coolant conduit means, said body including a first set of apertures communicating with said first conduit means and a second set of apertures communicating with said second conduit means;

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a first set and a second set of flexible hollow appendages connected to said body respectively at said first and said second sets of apertures and extending from said body for conduction of coolant between said cooling devices and said first and said second conduit means of said body, each of said appendages being distensible to allow connection with ports of said cooling devices; and wherein

said first conduit means and said second conduit means are separate from each other for maintaining separate flows of the coolant to and from each of said cooling device; said body further comprising

a plurality of sections extending transversely of said appendages and being arranged alongside one another to define said first and said second conduit means including fluid [illegible]tion passages therein, said first and said second sets

medium into thermal contact with a source of heat, whereby heat is transferred from the source of heat to the medium, said first heat exchange means having an interior and an exterior, said multiphase heterodensity heat exchange medium contained in the interior of said first heat exchange means;

a second heat exchange means having a hot side and a cold side for bringing said medium in thermal contact with a heat sink.

[illegible]

WIRELINE TOOL CONNECTOR WITH WELLBORE FLUID SHUTOFF VALVE

Lonnie J. Smith, Allen, and Dennis R. Wood, Plano, both of Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Feb. 25, 1987, Ser. No. 18,683
Int. Cl.⁴ E21B *47/00*; H02G *9/06*
U.S. Cl. 166—65.1 7 Claims

an internal guide section between the internal threaded ends, wherein the top portion of said guide section is a cylindrical opening essentially the same size as the outer diameter of said thin walled, cylindrical, stainless steel tubing and wherein the bottom portion of said guide section is a frustoconical surface tapering from the outer diameter of said thin walled, cylindrical, stainless steel tubing to the dimensions of the internal threaded end, such that said tapered surface rests on said off-set of said slightly larger diameter end at the lower end of said thin walled tubing; and

) a frustoconical tapered plug with an axial opening therethrough compressively engaged to the interior of [illegible] slightly larger diamete[illegible] walled tube within s[illegible]

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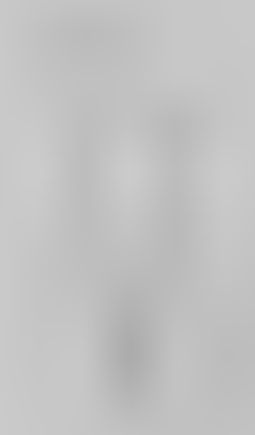

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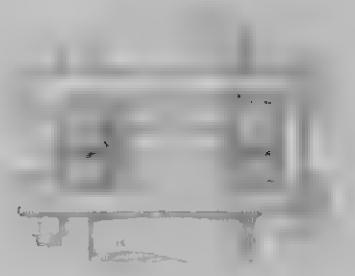

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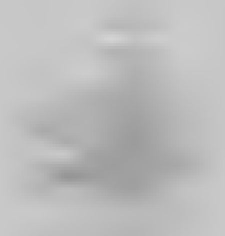

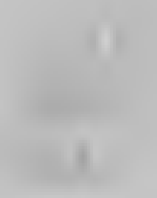

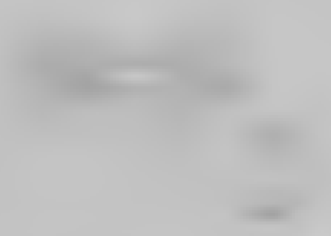

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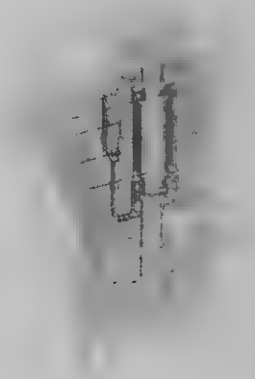

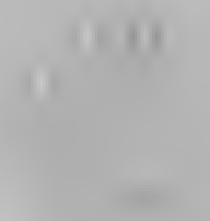

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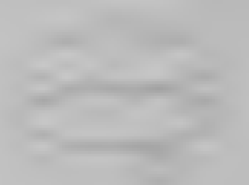

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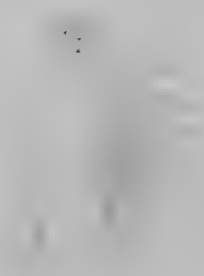
Filed Jun. 15, 1987, Ser. No. 62,76



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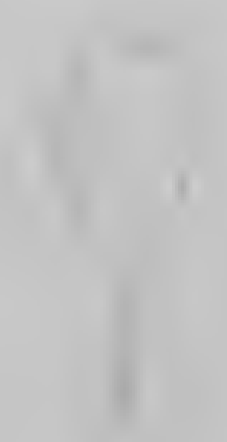

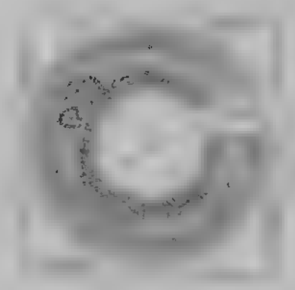

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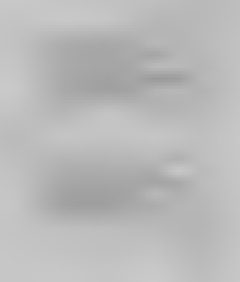

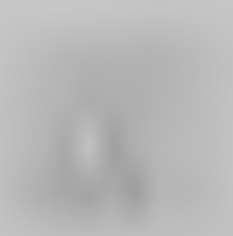

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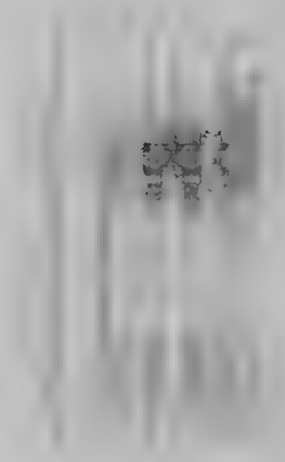

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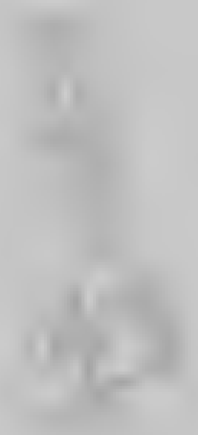

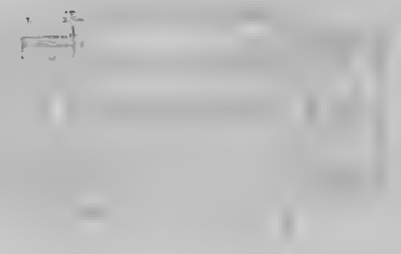

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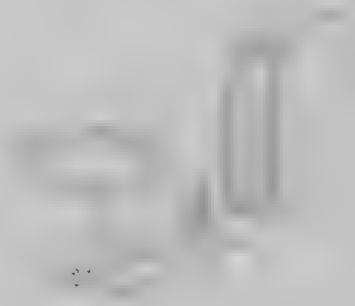
p Pr[illegible]tern, and Walter F. Trattner, Wiesb
of Fed. Rep. of Germany, assignors to Genera
rporation, Detroit, Mich.

KNIFE HOLDER FOR VEHICLES
Mord, and Carl W. Flowerday, Holland
mors to Prince Corporation, Holland



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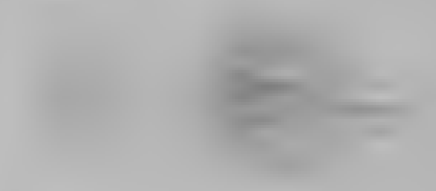
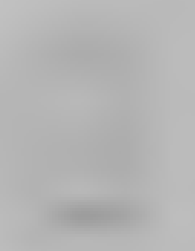


er, Jens; Helmut Becker-Ross, Fr



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R A CONSTAN
N MODIFICATI
to Uetsuki, both of K
and Toshiba Co

E SEQUENTI
ATRIX DISPLA
AL RESPONSES IN A
D STEADY FIEL
Saint Egreve, France, as
l'Energie Atomique, Paris, Fra
led Mar. 16, 1987, Ser. No. 26,

, Japan, assignor to Kabushiki Ka

ntinuation of Ser. No. 641,775, Aug. 17, 1984, abando
This application Sep. 29, 1986, S

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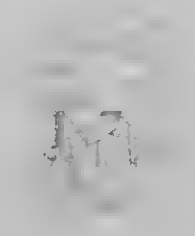

ya Kabushiki Kaisha, Tokyo, Japan

GLASSES WITH EXCHANGEABLE L
Schmidthaler, Linz, Austria, assignor to
chlon International Corporation, Norwo
Filed Mar. 28, 1986, Ser. No. 845,545
riority, application Fed. Rep. of Germ

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UMI

YING LASER
Tomoda, Mitaka
Kataoka, Kawagoe, and Seij
Japan, assignors to Hitachi,

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1092
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[illegible]

Yokohama; Kunihiko Kihara, Kanuma; Takao Akaishi, [illegible]tsushi Tsujibara, both of Yokosuka, all of Japan, assign-[illegible]

Filed Jul. 31, 1986, Ser. No. 891,13[illegible]

priority, application Japan, Jul. 31, 19[illegible]

[illegible]

DEWATER[illegible]

[illegible]atsuyuki Toma[illegible]

[illegible]

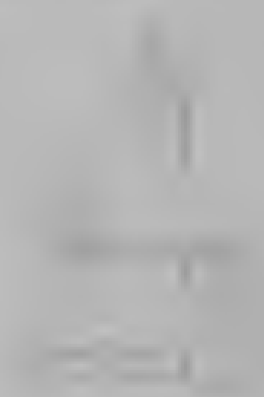
[illegible]AND PROCESS FOR M[illegible]

[illegible] DIFFERENT MATERIALS [illegible]

[illegible]SITY OR OF LOW TO HIGH VISC[illegible]

[illegible]rld, Kirchstrasse 59, CH-9202 Gossau

[illegible]



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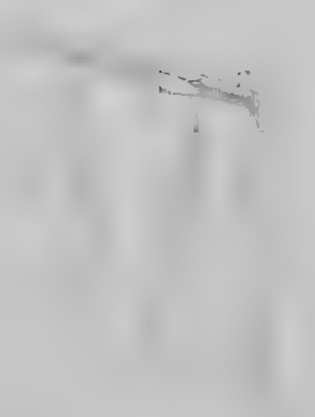
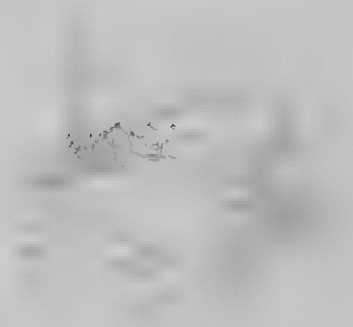
GAS BEARING BODY

syoti Mizakusa, and Sigenori Murate, both
aan, assignors to NGK Spark Plug Co., Ltd., Na
Sep. 23, 1987 Ser. No. 1





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DUAL AXIS PAPER DRIVE

[illegible] William R. Huseby; Robert P. Callaw[illegible]

WRITING INSTRUMENT WITH

Christoph Mannsch, Hanover; Günter Sel[illegible] Langenhagen; Heinrich Schoop, Iser[illegible] [illegible], Seelze; Manfred Brummer, Mu[illegible] [illegible]; Christian Hofmann, Burgdorf, and [illegible] [illegible], all of Fed. Rep. of Germany [illegible] [illegible]nover, Fed. Rep. of Germany

[illegible] Sandown, N.H., assignor

[illegible] leeve-shaped portion to engage [illegible]

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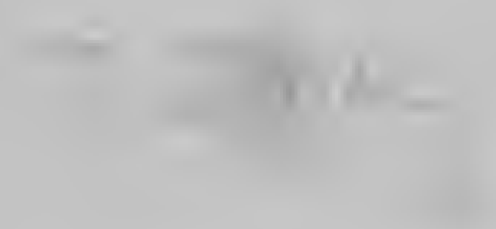
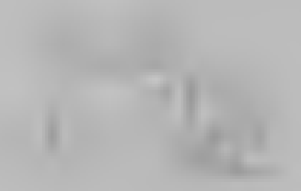
TION OF A



NT OF A LEVI
Ketsch (b) Mayo
Roland Grundl, Heiligkreuzsteinach,
...denburg, all of Fed. Rep. of Germany, a



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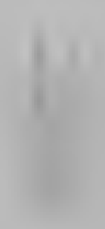
[illegible]

… Suzuki, both of Yokohama; … Matsumoto, Tokyo; Tomohiro … yama, Tokyo; Katsuhiko Kimura, Tok…

[illegible]



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CONSOLIDATING AND/OR SEALING SOILS AND COMPOSITION THEREFOR

Rudolf Burkhardt, Troisdorf, and Hansjürgen Hass, Troisdorf Spich, both of Fed. Rep. of Germany, assignors to Dynamit Nobel AG, Troisdorf Bez Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 842,733, Mar. 21, 1986, abandoned, which is a continuation of Ser. No. 639,303, Aug. 8, 19 abandoned. This application Dec. 19, 1986, Ser. No. 94

Claims priority, application Fed. Rep. of Germany

[illegible]

[illegible]

[illegible]

re thereof aligned coaxially wi

[illegible]

RILLING

AND HAVING

GEOMETRY

Eules R. Brown, Quinton, Va., assignor to American phone and Telegraph Company, AT&T Technologies

[illegible]

[illegible]

D APPARATUS TO

AL CONTAINERS FOR CAR

TRANSPORT

A. Larsen, 4831 Proctor Rd., Castro Va

Charles S. Christensen, Jr., 3145 Some

[illegible]

[illegible]

wing said pallet

ls at various he

[illegible]

rming, both of Ca., assignors to Thrall C

any, Chicago Heights, Ill

[illegible]

[illegible]

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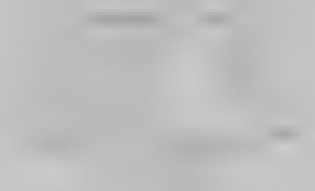
posed in said h

D WITH STABILIZER

signors to Illinois Tool Works Inc., Chicago, Ill
Filed May 8, 1987, Ser. No. 47,440



APPARATUS FOR ENABLING TRA
BETWEEN ADJACENT S
Ronald A. Pearce, Lakewood, and Milt

ed. Rep. of Germany, assignors to Deutsche Gesel

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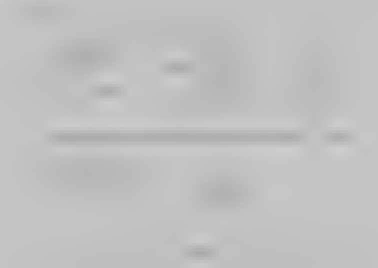
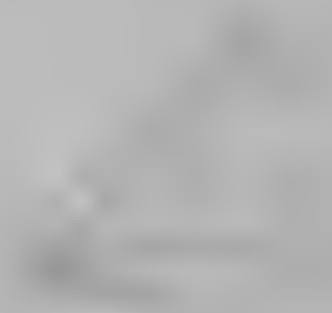
longitudinally along each
permitting gravity-urged movement of loads from one
he respective bay to the other end thereof, said trans-
g apparatus comprising
pair of sidewardly spaced and substantially parallel support
rails extending longitudinally of said bay, each said sup-
port rail defining thereon an upwardly facing and substan-
tially longitudinally uninterrupted support
ing substantially longitudinally of said bay
aid framework including an elongated station
extending longitudinally thereof in parallel and
jacent relationship to one of said support rails,
pport rail being vertically movably supported re
said mounting rail, said one support rail comprises an
ngated channel-like element which opens downwardly
externally telescopes over said mounting rail
d support platf
rface adapted t
ed thereon, said slave
support rollers

fluid and being c
een said mounting rail and said one sup
ding longitudinally therealong for e
al displacement of said one support
ing and at least partially
manner for alternatel
ipport rail to effect cy

4,759,677
TRANSFER TABLE SY
J. Paul Lukens, Jr., Perkasie, Pa., assignor to P
pany, Montgomeryville, Pa.
ontinuation of Ser. No. 817,989, Jan. 13, 1986, abandon
ication Sep. 3, 19





sert AG, Leverkusen, F
Filed Mar. 23, 19

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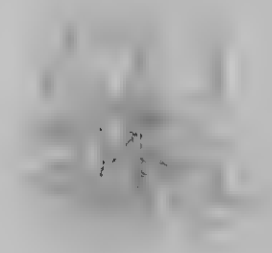
[illegible]

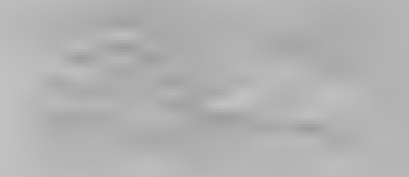
C.L. Jason, [illegible]

Jan. 16, 1986, Ser. N[illegible]

[illegible]

application N[illegible]





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ORPORATING ELEMENTS OF A
ITION DIVIDED INTO SECTORS
armen Mirancourt, Brie Comte Robert, and Remy P. C. Rit,
Vaux le Penil, both of France, assignors to Societe Nationale
d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.
M.A.", Paris, France
Filed Apr. 21, 1987
priority, application France, Apr. 24, 1986, 86 05924

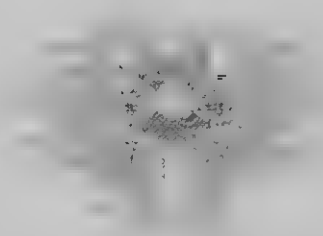
nd-Signal Inc., Morris Township

Ser. No.

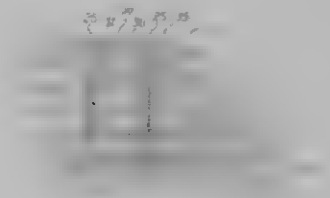
outer periphery at
around, said blades having interna
ing onto said outer periphery of the
aid hub section comprised of a plur

d blades.
said elements defining a pair of a

MOUNT



4,759,690
IMPELLER
n A. Deschamps, 16 Pickwood Road, Irene, Transvaal, and
Hendrik M. J. Horn, 4 Stinkbout Avenue, Eldoraigne, Verw
oerdburg, Transvaal, both of South Africa
t of Ser. No. 736,846, May 22, 1985
. This application Aug. 6, 1986, Ser. No. 893,79
Claims priority, application South Africa, May 24, 19



4,759,691
D AIR DRIVE
ASSEMB

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UMI

4,759,69?

SUCTION SOUND DAMPER

E. Outzen, Sonderborg, Denmark, assignor to Danfoss
Nordborg, Denmark

Filed Jun. 26, 1987, Ser. No. 66,[illegible]

1986, 3632[illegible]

FUEL PUMPING APPARATUS

Lee E. Thornthwaite, Rainham, and Paul R. Smith, Chatham
both of England, assignors to Lucas Industries, Birmingham,

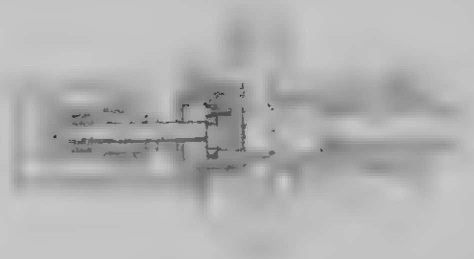
Filed May 14, 1987, Ser. No. 50,71[illegible]
y. application United Kingdom.

er, said sleeve [illegible]

4,759,695

UNIT FOR THE FILLING
PACKA

Abraham S. Pos

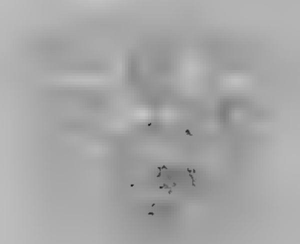


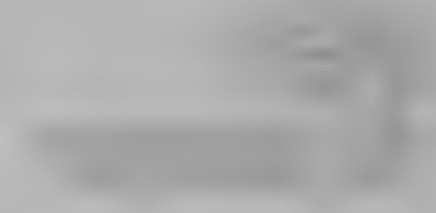
4,759,696

COMPRESSOR WITH BI
EXHAUST VALVE

Toshio Iwai, Ota, Japan, assignor to Sanyo Electr
Moriguchi, Japan

Filed Jun. 13, 1987, Ser. No. 2[illegible]977





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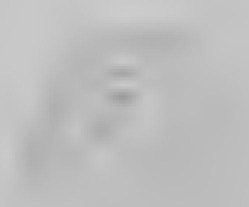
[illegible] o said shaft, said compressor having rotor means in [illegible] and sealing contact with said wall means operably [illegible] ed to and driven by said shaft means, means cooperat[illegible] [illegible] ns to form suction and pressure cham[illegible] [illegible] ousing means on opposite sides of said [illegible] sing means forming an outboard chamber in [illegible] and extending horizontally outwardly from [illegible] aring, a supply pipe between said oil sump and [illegible] amber having an inlet below the intended oil [illegible] p, said sealing contact forming a section [illegible] ween said suction chamber and said oil [illegible] ntaining a chamber pressure in [illegible] ediate said capsule and suction [illegible] resenting a sufficient resistance [illegible] quid flow of oil from said oil [illegible] r to establish and maintain a [illegible]

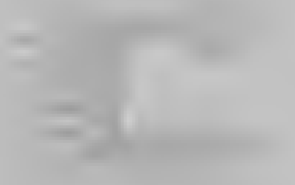


APPARATUS FOR THE PRODUCTION OF CUSHIONS WITH BACK-FOAMED COVERS

Volker Onnenberg, Wiehl, and Günter Möllmann, Hagen, both of Fed. Rep. of Germany, assignors to Fritsche-Mollmann GmbH & Co., Lotte and Bayer Aktiengesellschaft, Leverkusen, both of, Fed. Rep. of Germany

Filed Sep. 24, 1987, Ser. No. 100,[illegible]

Claims priority, application Fed. Rep. of Ger[illegible] [illegible]86, 36[illegible]



[illegible] th less than said diameter, [illegible] eat absorbing disc within said b[illegible]

[illegible] FOR STR[illegible] [illegible] FILM

[illegible] kari; Shingo K[illegible] [illegible] wamura, Kudamatsu, all of Japan [illegible] kuyama Soda Kabushiki Kaisha, Japan

[illegible] JE VULCURA[illegible]

[illegible] of Switzerland,

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…ward direction, and a cutter posi- …ned to cut the strand of cheese upon receipt of an actuation …ignal, the novelty comprising means for sending an actuation …ignal to said cutter including a stiff pivoted trip lever posi- …oned in the path of the extruded strand of cheese, said means … being adapted to send said … …d amount of said extruded …

…L SYSTEM FOR UNIT TORQUE …ERVO MOTOR FOR INJECTION …LDING MACHINE

…rumasa Otake, Tanashi, and Noriaki Neko, Hino, both of Japan, assignors to Fanuc Ltd, Minamitsuru, Japan

… No. PCT/JP86 00222, § 371 Date Dec. 30, 1986, § 102(e) … 1986, PCT Pub. No. WO86 06319

half formed integrally on one part … and spanning same, and a second … half hinge … and inclu… tion with a con… diametrical free … annular edge port…

…n circular edge portion… …ting to the ends of sai…

…part of Ser. No. 620,25… …application Jun. 21, 198… …application Fed. Rep. …

…outlet passage for th… …defining means hav…

…ngentia… …an outlet … …utlet duct at … …utlet duct.

…g a guide rail associated…

Clement H. Luken, Jr., Highland Heights, …man, Fort Thomas, both of Ky., assignor… …ers and Chemical Corporation, New Yor… …ision of Ser. No. 830,044, Feb. 18, 198… This application Jul. 23, 1987, Se…

4,759,708

…OR EXTRUSION BLO… …OMPARTMENTED CONTAINERS USI… COOLED BLOW PINS

…r Hestehave, Alta Loma, and Kjeld Hertel… assignors to Boma… …Mar. 30, 1987

…Hanau, and Werner St… …Rep. of Germany, assign… …Hanau, Fed. Rep. of Ger… Filed Mar. 9, 1987, S…

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4,759,711

LCINATION APPARATUS FOR USE IN DIZED-BED BURNING INSTALLATION FOR POWDERY RAW MATERIAL

hikazu Ichiyanagi, Kumagaya; Kenzaburo Suto, Saitama; amotsu Negishi; Yasuo Komatsu, both of Kumagaya; Shoji ekine, Niiza; Hiroshi Teshigawara, Koshigaya; Satoru Higuchi, Tokorozawa; Masaharu Kikuchi, and Hiroshi Yokomizo, both of Yokohama, all of Japan, assignors to Chichibu Cement Kabushiki Kaisha; Chichibu Engineering Kabushiki Kaisha ad Ishikawajima-Harima Jukogyo Kabushiki Kaisha, all of

ntinuation of Ser. No. 929,626, Nov. 12, 1986, abandoned.
This application Jan. 22, 1988, Ser. No. 147,050
aims priority, application Japan, Nov. 13, 1985, 60-252946

the calcining furnace
apparatus located upstr
rnace with resp
ials flowing to
ed burning furna
therewith which comprises means for prev
d clinker particles from reaching the calcining fur

ring such received fluid directly and only
at chamber, said lower vortex chamber

DEVICE FOR API TEMPERATURE STIMI TIS

Erhart E. Demand, Boston, Mass., assigno poration, Newton, Mass.
iled Oct. 17, 1986, Ser.

ol means adapted to be conne
ressurized fluid and coupled t
iding said tempe
ud probe means
ng cooling mea
luid below or at
ratures and mea
d temperature within said range
a temperature controlled stream

robe means, said probe assembly means in
g means pneumatically coupled in said pr
ans for cooling said stream of pressu
it is emitted from said pr
ting means pneumatical
means for heating
fore it is emitte

4,759,713

OSABLE DENTAL TOOL

Mark A. Heiss, Chicago; James C. Richardson, Schaumburg, and Phillip A. Taylor, Libertyville, all of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation of Ser. No. 759,023, Jul. 25, 1985, abandoned. This application Jul. 23, 1986, Ser. No. 890,258
Int. Cl.⁴ A61C 3/00

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mers and copolymers of ethylene terephthalate so that said dental instrument can be sterilized using radiation and ethylene oxide techniques so that said handle will degrade

4,759,714

TOOTH ROOT CHANNEL ANCHOR

a Sreseary, Buchholz-Strasse 39, 8053 Zurich, Switzerl
Filed Jun. 3, 1981, Ser. No. 269,98
aims priority, application Switzerland, Jun. 26, 1

ment of an artificial too
portion for attachment
improvement compris
mber having a l
al axial profile

length of said anchor
al axis, and having a w
ately seventy degrees and eigh
; and said anchoring member def
dinal groove means parallel to

Bernard Weissman,
ration, White Pl

an enlarged shaped head, t
having a matingly shaped cha
t between the pin sections and the maga
nting rotational movement therebetw
magazine sleeve comprises an elongat
member having an internal axial passageway throug
the pin is ejected, said chamber forming at least a p

s to The United States of America
the Secretary of the Navy, Washington

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est: Sylvain Tremblay, Mont
ntigny, and Etienne Bourbard,

1,759,748

PLACED

zuo Nobuta, H-405, 27, Nakada
yo, Japan (174)

Conti

affect a pressure seal thereof;
second vessel dimensioned for insertion through said
t entry port into said vacuum vessel and containing a
passage therein communicating with the interior of said
first vessel;
) electrical conductor means for supporting source mate-
rial in said second vessel; said conductor means extending
through the sealing means in said first entry port into said

d to said sealing means for suspe
in said first vessel below the first
pending means spacing said second vesse
ember and sides of said first vessel, and
ing means connected to said electrical conductor
ans and located within said second vessel proximate to
the source material, said heating means being coupled by
aid conductor means to an external supply, the activation

SUPER-LEARNING METHOD

Gerhard Niemoller, Ratekau, Fed. Rep. of Germany, assignor to
Therapy Products Muller oHG, Ratekau, Fed. Rep. of Ger
many

PCT No. PCT/DE85/00131, § 371 Date Dec. 24, 1985, § 102(e)
Date Dec. 24, 1985, PCT Pub. No. WO85/05208, PCT P

PCT Filed Apr. 25, 1985, Ser. No. 827,259
Claims priority, application Fed. Rep. of Germany
84, 3415

Int. Cl.⁴ G09B 5/00

lly toget

said prevailing stat
said biofeedback u
said switching mean
said cadence gener
transducer singly o
of said soun
automaticall
speed resu

James R. Moore; Rhonda L. Neme
eale, all of Warren, Pa., assigno

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...t a middle part ...ves smaller thar... each half of said shielding cap having a smaller and ...r semi-cylindrical wall, said smaller wall providing ...for receiving some lengths of unstripped cable and ...hole for receiving a socket ...t and having said core wire

...e housing portion ...nge means to a first

...using means fo...

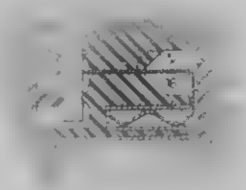
HOUSING FOR AN ELECTRICAL DEVI

...lippe Lefevre; Gilbert Echasseriau, and Patrice ...of Toulouse, France, assignors to Bendix Electro... Toulouse, France

Continuation of Ser. No. 797,058, Nov. 12, 1985, abandoned. This application Feb. 25, 1987, Ser. No. 20,152

Claims priority, application Franc...

Int. Cl.⁴ H01...



...in said first cavi...

...t cavity for enclosing an electric... ...d cavity being separated from s...

...f said lug situated inside said se...

...said second ca... ...electrical wire

...ox 109, Contesv... ...ct. 26, 1987, ...

...ird socket wherein the said first and second sockets exte... outward from opposite sides of the said fixture body an... wherein the said third socket extends outward laterally from the said fixture body; and wherein each of the said sockets is provided with a plug that extends outward therefrom and that is adapted to be inserted into a knockout hole in a wiring b... and adapted to couple the said fixture to the said wiring bo... ...h plug of a socket comprising a plurality of tapered spring... ...s integral with the socket and that extend outward ...cket and that are adapted to deflect inward when the outer ends of the said tapered spring projections are inserted into a knockout hole in a wiring box and are pressed int... the said hole

SCREWLESS TYPE ELECTRICAL TERMINAL BLO

Herbert C. Naylor, West Dundee; Deanna L. Gross, Bartle... both of Ill., and Gregory J. Smith, North Attleboro, Ma... assignors to Reed Devices, Inc., Carol Stream, Ill.

Continuation of Ser. No. 765,368, Aug. 13, 1985, abandon... This application Aug. 12, 1987, Ser. No. 85,28...

...pe terminal block, com...

...said first grippi... ...nd second grip... ...nd, said first ... ...opposed and ... ...ed to clamp a wi...

MULTIELECTRODE ...

Eiroo Moji, and Shuichi Miyake, b... ...shi, Tokyo, Japan

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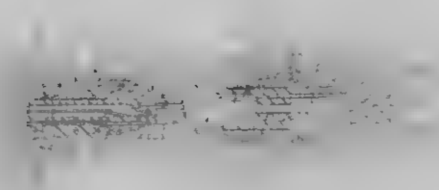
rranged to bear on the bottom of said box and ish said outer ears against said radial lip or material nterposed therebetween, and wiring means to secure an lectric conductor to each of said terminal posts.

[illegible] rising, a pair of insulated electric [illegible] ngth, each end of said pair of elec- [illegible] inating in a terminal block having eparated, generally parallel, electric terminals adapted to cooperate with said pair of dissimilar terminal posts in said box, insulation of said terminal block extending beyond [illegible] ntereference [illegible] nterefere on

4,759,729

LECTRICAL CONNECTOR APPARATUS

[illegible]emppainen, Bloomington; James D. Bradley, Mound, [illegible]orge B. Pfeffer, Minnetonka, all of Minn., assignors to



[illegible] cting in the first cavity and said second [illegible] tor;

[illegible] first means for holding said first [illegible] said first conduct-

4,759,730

POLARIZED FUSEHOLDER ASSEMBLY

Gayle L. Sappington, Glendale, and Angelo Urani, St. Louis, both of Mo., assignors to Cooper Industries, Inc., Houston, Tex.

Filed Feb. 18, 1983, Ser. No. 467,842

Int. Cl.⁴ H01R 13/68, 33/95, 13/642

[illegible] using having [illegible] ing means engag [illegible]

[illegible] asably joining said line side ter [illegible] onductors, said breakaway re [illegible] f spaced apart insulating slee [illegible] herein so that when ass [illegible] l fuseholder telescope into the insulating [illegible] eceptacle and make sliding contact with the female terminals therein; and assembly means for insuring proper polarity between respective load and line conductors, said assembly means engageable between the load and line fuseholder housing and between t [illegible] receptacle so that when said loa [illegible] initially moved into a position which would provide prop [illegible] aid load and line conductors said assembly [illegible] l housings to move into a fully assembled

---

[illegible]seki Uchida, and Katsumi Torigai, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Sep. 11, 1986, Ser. No. 906,329

Claims priority, application Japan, Sep. 19, 1985, 60-205377

Int. Cl.⁴ B63H [illegible]

[illegible] operation than speed and oper [illegible] ontrol means for controlling t [illegible] ic speed control element setable by [illegible] ator for selectively establishing a desired speed, means for operating said speed control means in response to a signal from said automatic speed control element for maintaining the desired vehicle speed, a further vehicle control element operable by the operator through a normal range of positions for controlling said other vehicle operation than vehicle speed, and

[illegible]59,732

[illegible] FOR MAR[illegible] DEVICE

[illegible]ya Atsumi, Hamamatsu, Japan, assign [illegible] abushiki Kaisha, Hamamatsu, Japan

Filed Apr. 1, 1987, Ser. No. [illegible]

[illegible] application Japan [illegible]

pivoting said outboard drive about said steering axi [illegible] ing the watercraft, a trim tab journaled on said outb [illegible] for generating a hydrodynamic f [illegible] watercraft, means for measurin [illegible] ering means, memory means

TILTING MECHANISM FOR MARINE PROP[illegible]

[illegible]uchi Nishimura, Hamamatsu, Japan, assignor [illegible] Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Dec. 1, 1986, Ser. No. 936,34[illegible]

Claims priority, application Japan [illegible]

Int. Cl.⁴ B63H [illegible]

[illegible] ing a transom bracket ada [illegible] an associated watercraft, a [illegible] connected to said transom [illegible] a tilt axis from a n [illegible] position, and mea [illegible] for locking said outboard drive bracket in said tilt [illegible] comprising a link pivotally supported on one of [illegible] and defining a slot therein, a pin carried by the ot [illegible] brackets and received in said slot for traversing said pivotal movement of said outboard drive bracket ab [illegible] axis for effecting pivotal movement of said link, and restraining means other than said pin and said slot [illegible] ably retaining said link against pivotal movement [illegible] outboard drive bracket is in a tilted up position [illegible]

[illegible]obert S. Scheurer, P.O. Box 539, Wichita Fa[illegible] and Kendal Hancock, Wichita Falls, Tex., assign[illegible] Scheurer, Wichita Falls, [illegible]

Filed Dec. 23, 1[illegible]

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mounted, having a shou
for guiding slide means forward and rearward,
said slide means supporting the grip means and peripl
edge, said slide means including
a toe plate being generally U-shaped and having a stepped central portion slideably receiving the shoulder portion of the track means, wherein the stepped central portion and shoulder portion provide guide means for guiding the toe plate forward and rearward, and
an upper plate, connected to an upper surface of the toe plate, being adapted to carry a portion of a user's foot, wherein a T-shaped groove is defined by a lower surface of the upper plate and inner stepped sidewalls of the toe plate, and,
first locking means, connected to the slide means, for coup
ig with second locking means connected to a fixed
upport to selectively permit and prevent movement

SOLAR CELL POWERED BEACON

elecic Pagnol, Domaine de l'Etoile, 06610 La Gaude, and Claude Ratti, 4, Avenue Jacques Abba, 06320 Cap D'Ail, both of France

Continuation-in-part of Ser. No. 644,051, Oct. 23, 1984, abandoned. This application Sep. 29, 1986, Ser. No. 912,499

Claims priority, application France, Oct. 24, 1983, 83-17026

Int. Cl.⁴ B63B 22/00, 45/00; F21L 13/00

16 Claims

ig an upper wall, battery means within the
ng electrical energy produced by the solar
leans within the caisson for operating the
icorporated in heat dissipat
e upper wall of said caisson,
ctrical conductors connected to said solar cells, said electrical conductors traversing the thickness of the upper wall of the caisson to the interior thereof, and means for electrically con

4,759,736

FOLDING WING GLIDER

son, Urbana, Ill., assignor to Off The Ground Models,
wrenceville, Ill

Filed Feb. 11, 1986, Ser. No. 828,430

Int. Cl.⁴ A63H 27/08

S. Cl. 446—62 5 Claims

1. A folding wing glider comprising in combination
o said fuselage, each of said
surface, each of said wings includ-
panel and an outboard wing panel of
onnected thereto said outboard wing
iwardly away from said upper surface
g panel and underneath the respective
nels to thereby be placed in a locked

releasable locking means to controllably relea
board wing panels from said folded launch po

4,759,737

DOLL HAVING PNEUMATIC ACTUATED ARMS

Magda Ferenczi, 395 Paul Ct., West Hempstead, N

Filed Mar. 11, 1987, Ser. No. 24,389

1. A soft-bodied doll comprising a body, a pair of arms attached to a pair of shoulders and movable relative thereto, the arms and body being formed of soft outer skin material and filled with soft resilient material, and pneumatic means within the body associated with the arms, the pneumatic means being
application and relaxation of manual pressure
to effect movements of the arms relative to the body
wherein the pneumatic means comprises a soft resilient container within a chest area of the body, a pair of resilient flexible tubes, one of which tubes is connected to and opens at an upper end thereof into a side of the container and extends from it through a shoulder of the doll and down into one of the arms where it terminates at a bottom end of a forearm, and the other one of the tubes similarly is disposed with respect to the other arm at an opposite side of the container, the container and tubes being filled with air and the tubes being sealed at their terminal ends against escape of the air, and the arms and tubes having a normal condition in which upper portions of the arms depend alongside the body and the forearms bend at the elbow to front the body, the container being compressible under manual pressure applied to a back area of the body to pressure air in the tubes to cause
upwardly, and the contai
being returnable to norm

FLOATING CUSHION SUB

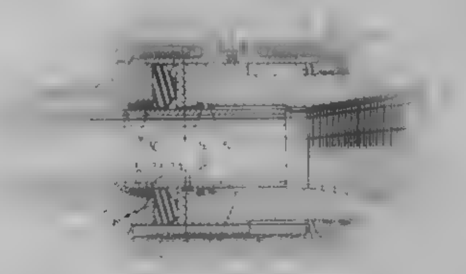
Clarence W. Johnson, Calgary, Canada, assignor to Bralorne Resources Limited, Calgary, Canada

Filed Jun. 3, 1985, Ser. No. 740,370

Claims priority, application Canada, Jun. 1, 1984, 455651

Int. Cl.⁴ E21B 17/02; F16F 15/10

S. Cl. 464—20 9 Claims



i member operabl
power head and a drill string member com
first cap member mounted about the periphe
second cap member, a body member connecting
second cap members, spline means between said body member and said piston relative to said body member, a washpipe extending from said second cap member into said piston, said washpipe being operable to have limited angular movement relative to both of said piston and said second cap member, said piston further being longitudinally movable relative to said washpipe, said first and second cap member
and said second cap m

4,759,739

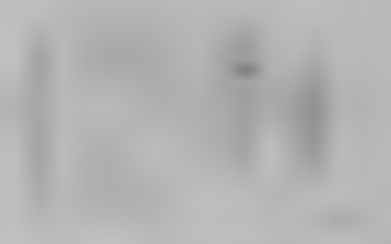
SIBLE CHAINWHEEL VARIABLE RATIO MECHANICAL DRIVE

Weir, 215 Essex Street, Sarnia, Ontario, Canada

Oct. 24, 1984, Ser. No. 664,173

F16H 55/54, 9/00 11/06, 55/30

ms



aid input and outpu
input and output to cause rotation of said t
and a second drive path interconnecting said
to increase the diameter of said transmission device upon application of torque at said input in a first rotative sense and decrease the diameter of said transmission device upon application of torque at said input in a second rotative sense op
to said first rotative sense and resilient means to p
progressive resistance to expansion of said transmissi
nd paths being interconnected such tha
h said second path to expand said transmis
lanced by said resilient means and sue

4,759,740

DUAL ENGAGING SILEN

Kevin M. Craddock, Groton, N.Y., assignor
Automotive, Inc., Troy, Mich.

Filed Apr. 1, 1987, Ser. No. 3

inverted tooth links stacked adjac
blocks alternating with and separa
guide links
s engaging the
teeth, each
y having a pair
apertures
said
exten
depending teeth having outside flanks and inside fla
by a rounded crotch, the inside flanks of the tee
curved edges defined by radii centered in the apert

THE LIKE

ald P. Chisholm, Jr., Merrimack, N.H., as
lty Equipment Corporation, Worchester, Mass

Filed Oct. 8, 1986, Ser. No. 916,539

of the term of this patent subsequent t
has been disclaimed

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e surface speed of the blank throu

at one end to

HH BAGS

4,759,743

PORTABLE CONTAINER, METHOD FOR ITS PRODUCTION AND DEVICE FOR ACCOMPLISHING THE METHOD

Stig Patriksson, Lilla Edet, Sweden, assignor to Pat
Inventing AB, Alvangen, Sweden

Filed Oct. 1, 1986, Ser. No. 914,179

Claims priority, application Sweden, Oct. 3
1. 14, 1986, 8603106

Int. Cl.⁴ B31B

xial direction

4,759,

SEPARATO
OF SEPARATE

ockholm, Sweden, assi
mba, Sweden
led Feb. 20, 1987, Ser
s priority, application Sw
Int. Cl.⁴ B

al inlet chamber (10) in the rotor arranged t
ixture of components from said stationary fi
t channels in the rotor connecting the central inlet cham
er (10) with the separation chamber (5).
nd channels in the rotor connecting the radially inner
nost parts of the separation chamber (5
utlet (15) of the rotor for separated l
channels (27, 28) in the rotor connect
utermost parts of the separation chamber (5) with
ntral outlet (33) of the rotor for separated heavy comp

for recirculation to the separatio
parated heavy component hav

spective central

components are kept separate from
er and with the atmosphere sur-

arranged to su
paration chamber
dly rigid connect
eration of the rotor from said c
he separation chamber (5) to the
(15, 33).

DRIVE

d., Surrey,
inuation of Ser. No. 251,378, Apr. 6, 1981
application May 13, 1983, Ser. No. 494,566

fluid through the fl

Jeffrey G. Strauss, 2300 Edenborn
Metairie, La. 7000

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[illegible] INCLUDING PRESSURE ADJUSTING MEANS

[illegible] Aida, and Hiroyuki Uehara, both of Tokyo, Ja[illegible] assignors to Pigeon Company, Ltd., Tokyo, Japa[illegible]
Filed Oct. 21, 1986, Ser. No. 921,252
[illegible] priority, application Japan, Oct. 21, 198[illegible]
Int. Cl.⁴ A61M [illegible]

[illegible] and through said [illegible] is extracted from [illegible] is positioned when suction is [illegible] suction pump, said tubular [illegible] hole open to and communicating [illegible] and a pressure adjusting means at [illegible] means over said auxiliary hole fo[illegible] said air passageway via said auxiliar[illegible] said air passage[illegible] the tubular [illegible]

[illegible] -part of Ser. No. 880,1[illegible] is a continuation of Ser. [illegible]

[illegible] for negotiating a tortu[illegible]

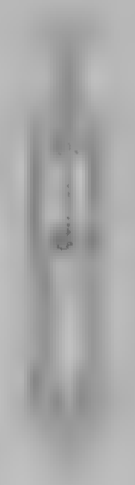
[illegible] HEATER FOR PHYSIOLOGICAL FLUIDS

Wesley H. Verkaart, Duxbury, Mass., assignor to Level 1 Technologies, Inc., Plymouth, Mass.
Filed May 27, 1986, Ser. No. 866,910
Int. Cl.⁴ A61F 7/12; H05B 1/0[illegible]
[illegible]—113 19 Claims

[illegible] fluid connector [illegible] a passageway [illegible] said warming [illegible]

[illegible] to said support mea[illegible] positions, wherein sai[illegible] means are spaced by a [illegible]

[illegible] fluid to be introd[illegible]
(c) a first means to [illegible] adjacent said first p[illegible] axially outward of said first plung[illegible]
(d) a second means adjacent said firs[illegible] the first means and having indic[illegible] first means to project axially [illegible] when said bias is overcome [illegible]



4,759,750
[illegible]PRESSURE SENSING SYRINGE

[illegible] H. DeVries, Grand Rapids, and Richard J. VanPoperting, [illegible], both of Mich., assignors to DLP Inc., Grand Ra[illegible] Mich.
Filed Dec. 22, 198[illegible]
Int. Cl.⁴ A[illegible]

[illegible] both of N.J., assignors to [illegible] Franklin Lakes, N.J.
[illegible] continuation-in-part of Ser. [illegible]

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ugh said body and said distal end in fluid communi n with said lumen, said cannula providing a path to th tside environment for purging air from said lumen a uid is introduced into said lumen, said cannula supported by and connected to a purging element, said distal d being sealable to retain liquid within said lumen after d body is removed from the tube, said body and said iably engaged to each other

4,759,752

CATHETER

ert Stuber, Uber dem Rotter, Fed. Rep. of Germany, as
ln intermedicat, Emmenbruecke, Switzerland
Filed Nov. 14, 1986, Ser. No. 930,784
aims priority, application Fed. Rep. of Germany
Int. Cl.⁴ A61M 5/00

eter tubing, said insert h

cross section, the fron

cross section having a diameter greater t diameter of the catheter tubing, the fron atheter tubing thereby defining a val i case of internal overpressure,

gment having a cross section and being fixed to the er tubing, the end segment cross section having a ximum diameter substantially equal to the diar he front segment cross section, the end segmer ed therein at least one bypass channel extendi t segment,

intermediate the front segment and the end

east in part, smalle nt segment cross

RNAL MALE URINARY CATHETER

kneider, Deerfield, and Mahmood Mohiuddin, Lake
ch, both of Ill., assignors to Hollister Incorporated, Liber
lle, Ill.
Filed Dec. 12, 1986, Ser. No. 941,102

te urinary cath

urethral meatus when said shea tient; said opening having a diam ide diameter of said sheath secti

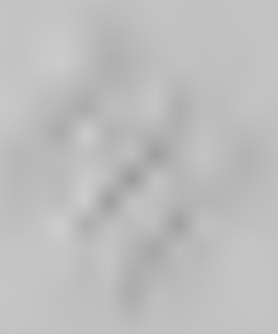
said sheath s for adhesivel a tapered t

ged opening and a distal portion adapted

and means releasably connect

SANITARY NAPKIN

opman, Bridgewater, N.J., a
pany, Milltown, N.J.
Filed Aug. 26, 1987, Ser
Int. Cl.⁴ A61F



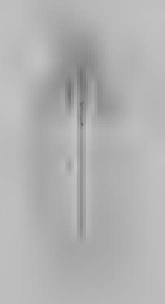
panels being covered on o apertured polymeric film, around said central absorbe

ilm surface to the outside, the improveme ng an adhesive coated tape tab to one of a portion of said tape tab extending be edge of said side panel and positioned so tha panels are folded around said central absorl

4,759,755

DEVICE FOR TRANSFERRING LIQUID FROM TO A MULTI-POINTED APPLICATOR

Gary L. Hein, Oakley, and Donald R. Mowen, Decatur
Ill., assignors to Lincoln Diagnostics, Inc., Decatur, I
Continuation of Ser. No. 708,211, Mar. 5, 1985, abandon
application Nov. 12, 1966, Ser. No. 929,756
Int. Cl.⁴ A61B 19/00



receive and retain th liquid agent, and (2 withdrawn liquid ag comprising

an elongated rod-like member having attached to thereof one open end of a relatively short op he other open end of which has an u bead-like flange means thereon,

having a bore extending from end to en large enough to fit down over said test h ely encircle said cluster of spaced sc ts, and.

l bead-like flange mea agent within said sleeve

en liquid

4,759,756

RECONSTITUTION DEVICE

Hugh M. Forman, Waukesha, Wis., and Donald B. Williams
Chicago, Ill., assignors to Baxter Travenol Laboratories, Inc
Deerfield, Ill.
Filed Sep. 14, 1984, Ser. No. 650 4
Int. Cl.⁴ A61J

rising a cup rem

Miami, Fla.

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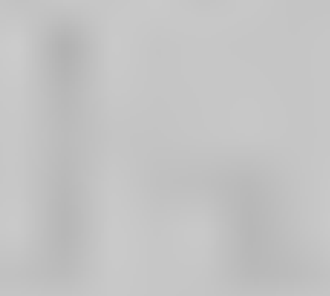
4,759,758

THETIC HEART VALVE

Birchwood La., Hartsdale, N.Y. 10530

7, 1984, Ser. No. 679,261



in the upper po

LE HEART VALVE

6 Cedarglen Rd., Victoria, British Colum
bia, Canada (V8N 2B2); Richard T. Brownlee, Suite 101, 1780
Fort Street, Victoria, British Columbia, Canada (V8R 1J5),
Denton E. Hewgill, 4012 Morningside Close, Victoria, British
Columbia, Canada (V8N 3M2); Lawrence N. Scotten, 968
rge Road West, Victoria, British Columbia, Canada (V9A
), and Roberto G. Racca, 3999 Braefood Road, Victoria,
itish Columbia, Canada (V8X 2B6)

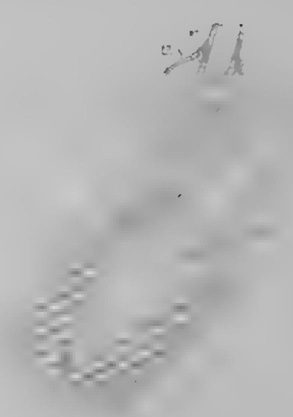
Filed Dec. 22, 1983, Ser. No. 564,266

ns priority, application Canada, Jun. 23, 1983.

ably-movable valve leaflets secured along a smooth curve defining the upper perimeter of the reliefs; said valve leaflets each being preformed and moulded so that the free margin of said biocompatible leaflets along the free edge of f said leaflets between the tips of said struts is related to ular base such that, when said the cross-sectional area is substantially equal to the cross-sectional area of the inside of said ircular base, and when said valve is in its relaxed and natural position, the free edges of said leaflets drop down and sealingly meet in substantially wrinkle-free form at a curve of apposition, the shape of said leaflets in that closed position approxi

A. Snapp, Jr., 190 Lehmberg

of a biocompatible, elastic ma
t a portion of said second chamber
ed between said muscle and said
sing dilation of sai
scle is relaxed.
eing associated



4,759,761

TADIOPTRIC INTRAOCULA

ortnoy, Irvine, Calif.,

9,430, Mar. 13, 1986.

FOLDABLE INTRAOC

el G. Bissonette, Richfield; Thomas

and Harold H. Hogan, Brooklyn P

ACCOMMODATING LENS

rendahl, 2070 Shoreline Dr., Orono, Mi

ation of Ser. No. 709,807, Mar. 8, 1985, aband

application Jun. 16, 1987, Ser. No. 62,57

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PERIPHERAL NERVE REGENERATION

James W. Fawcett, San Diego, Calif., and Roger J. Keynes, Cambridge, England, assignors to Clayton Foundation for

a of Ser. No. 738,086, May 24, 1985, abandoned.
This application Jul. 28, 1987, Ser. No 80,232

asal lamina tube
is the same as
material being
ubes, and said ba

Lng a terminal

eing adapted for fixatio
structures connected

4,759,766

INTERVERTEBRAL DISC ENDOPROSTHESIS

Karin Buettner-Janz; Bernd Derr, both of Berlin; Klaus-Peter Erkel, Dresden; Hans-Joachim Helisch; Kurt Schellnack, both of Berlin, and Roland Schumann, Dresden, all of German Democratic Rep., assignors to Humboldt-Universitaet zu Berlin, Berlin, German Democratic Rep.

Continuation of Ser. No. 767,552, Aug. 20, 1985, abandoned
This application Sep. 9, 1987, Ser. No. 96,314
Claims priority, application German Democratic Rep., Sep. 4, 1984, 266959; Feb. 12, 1985, 273192; Jul. 19, 1985, 278792; Jul. 19, 1985, 278793

tervertebral disc endoprosthesis comp
end plates and a spacing piece, said spa
urfaces, said first end plat
p surface of said spacing
ng a second surface adja
piece, said top, b
urtual surfaces
ce and said first surface adjacent
ongruent and defining a first cyli
urface and said botom surface and sa

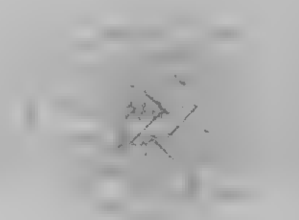
entral axis passing th

JOINT

James A. Lacey, Winter Park, Fla., a
Wright Corporation, Arlington, Tenn
Filed Aug. 10, 198
Int. Cl.

PROSTHESIS

Thierry Hermann, Wenkenhaldenweg, 15, 4125 Riehen, land, and Michel Pequignot, 16 Villa Désiré Filleau Samart, France
Filed Feb. 13, 1987, Ser. No. 15,10



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as P. Heitman, J
Fernie, and Brian
assignors to Health & Research
Canada.
Filed Jun. 22, 1987, Se

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4,759,770

SIMULTANEOUSLY D IMPROVING THE FLAME-RESISTANT PROPERTIE OF ARAMID FIBERS

Barbara J. Cates; James K. Davis; Tanya E. FitzGerald, a Ernest J. Russell, all of Greensboro, N.C., assignors to Bu lington Industries, Inc., Greensboro, N.C.

Continuation-in-part of Ser. No. 863,038, May 14, 1986, Pa No. 4,710,200. This application Jun. 4, 1986.

Int. Cl.⁴ D06P 5/00.

aneous dyeing and flame lamide) fiber, comprising

ting a dyeable poly(m-phenyleneisophthalamide) with a solution of an organic swelling agent adapted swell said fiber and sel of N-methylpyrrolidone lacetamide, and a dilu swelling agent to diluent is from abou solvent-compatible dyestuff dissolved i flame retardant, the solution maintaine

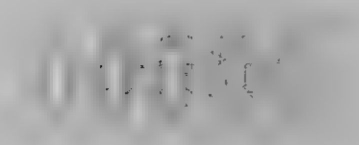
4,759,771

PACKAGING TECHNIQUE FOR BATTERI

L. Morra, Plano, Tex., assignor to SGS-Thomso etronics, Inc., Carrollton, Tex.

Filed May 21, 1987, Ser. No. 53,141

Int. Cl.⁴ H01M 2/00



Edward S. Rogers, Princeton; Arno H. Re Mark A. Herbstrith, Peru, all of Ill., assign poration, LaSalle, Ill.

dried

Antti Vuorela, Oulu, Finland, assignor to A. Jalander C

Jerome Hochberg, and Robe Del., assignors to E. I. D

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METHODS AND APPARATUS FOR MOVING AND SEPARATING MATERIALS EXHIBITING DIFFERENT PHYSICAL PROPERTIES

terson; Owen D. Brimhall; Thomas J. McLaugh
lt Lake City; Charles D. Baker, Lehi, and Sam I
rks, Alpine, all of Utah, assignors to Utah Bioresearch,
Salt Lake City, Utah

Filed Feb. 21, 1986, Ser. No. 83

ustic wave which produces

ells from the plasma

4,759,776

RMYLPROPYNE F
MEMBRANES

el Langsam, Allentown, and Ann C. L. Savoca, Readi
th of Pa., assignors to Air Products and Chemicals, Inc

alkyl group c

28. A proc

eam and concentrate t
t stream

4,759,777

AMINATION OF WOOD CHI

Nallepilly Balakrishnan, Deerfield, Ill., and Terry I
Kenosha, Wis., assignors to Bact Engineering, Inc.,
Heights, Ill

on by naturat
alkaline aqueo
oduct and
ode for

4,759,778

AIR FILTER

Wayne E. Conrad, Brooklin, Canada, assign
ronmental Inc., Burlington, Canada

Filed Sep. 25, 1987, Ser. No. 101,872

Claims priority, application Canada, Sep. 26, 1986, 519171

Int. Cl.⁴ B03C 3/09, 3/12, 3/41

arallel with and
lefining a plura
ough the element
g substrate adjac
l having openin

carried by the substrate
electrostatic field is creat
thogonally with respect to the fl
nductors when the conductors a
pack.

filter element
ding between th
l element and

4,759,779

MEANS FOR CROSS-LINKING COLL
CTRODE PANELS IN AN ELECTROS
PRECIPITATOR

Snedd, Birmingham, Ala., assig
ering, Inc., Windsor, Conn

Filed Apr. 27, 1987, Se

Int. Cl.⁴ B0

one-piece elongated
central portion exten
end portions dispo
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an alignment bracke
and having a second
and disposed
ing a tail po
first and sec

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4,759,780

[illegible] ,US FOR CONCENTRATING A GAS, [illegible] Y OXYGEN, FROM A GASEOUS MIXTURE [illegible] ; AN ULTRATHIN SOLID MEMBRANE

[illegible] akeyoshi Yamada; Shizuka Kurisu; Shizuo Azuma; Kiyoshi Sugie, and Teizo Yamaji, all of Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

Division of Ser. No. 217,582, Dec. 18, 1980, Pat. No. 4,406,673. This application May 25, 1983, Ser. No. 498,154

Claims priority, application Japan, Dec. 27, 1979, 54-169461 [illegible] 2, 1980, 55-72678; Jul. 14, 1980, 55-95057; Nov. 6, 1980 [illegible] 5198; Nov. 6, 19 [illegible]

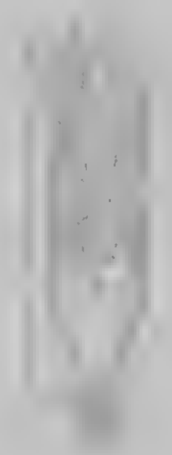
[illegible] concentrated therein through the solu [illegible]

FILTERING AND DUST COLLECTING

Robert P. Olson, 8080 Timber Lake Dr., Eden [illegible] 55344

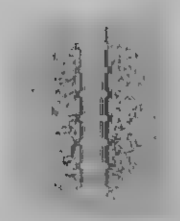
Filed Mar. 9, 1987, Ser. No. 23 [illegible]
Int. Cl.⁴ B01D 46

U.S. Cl. 55—273



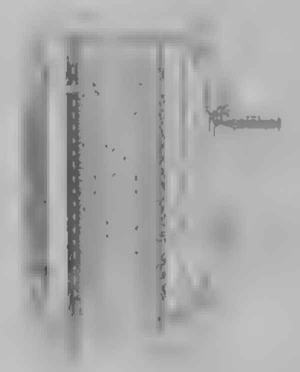
Pall Corporation, Glen Cove [illegible]
Continuation-in-part of Ser. No [illegible]

Int. Cl.⁴ B01D 5 [illegible]



SEALING ARRANGEMENT FOR IN [illegible]

Joseph Machado, Attleboro, Mass., assig [illegible] Inc., Morristown, N.J.



[illegible] wall, said housing further including [illegible] let opening, said housing defining a [illegible]

[illegible] ing, said housing including seal supporting means supporting said seal radially offset from said sealing surface and axially offset from said one end of the cartridge, and retaini [illegible] retaining said seal on the seal supporting means, [illegible] luding a radially projecting portion when retain [illegible] d retaining means, said ra [illegible] ngaging the sealing surf [illegible]

[illegible] shima, Japan

Division of Ser. No. 821,601, Jan. 23, 19 [illegible] application [illegible]

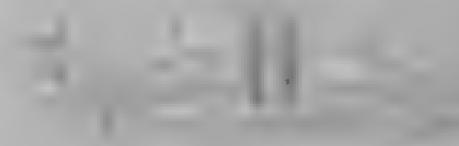
Claims priority, a [illegible]

[illegible] Jarie-Pierre Barthe, Gouvieux; Jean A. Battigelli, a [illegible] Bouquet, both of Rantigny, all of France, assigno [illegible] Saint-Gobain, Paris La Defense, France

Division of Ser. No. 851,296, Apr. 7, 1986, whi [illegible] continuation of Ser. No. 539,728, Oct. 6, 1983, abando [illegible] is a continuation-in-part of Ser. No. 461,834, Jan. [illegible] abandoned, which is a continuation-in-part of Ser. N [illegible] Aug. 18, 1982, Pat. No. 4,451,276. This application J [illegible] Ser. No. 79,10 [illegible]

Claims priority, application European Pat [illegible] 83400676.3; Apr. 6, 1983, 83400699.1; Fran [illegible]

[illegible] term of this patent sub- [illegible]



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SEPARATION OF GASEOUS MIXTURES

mothy D. Atkinson; John T. Lavin, both of London, and David T. Linnett, Hoddesdon, all of England, assignors to The BOC Group plc, Windlesham, England

Filed Dec. 22, 1986, Ser. No. 945,439

Claims priority, application United Kingdom, Dec. 2

mixture comprising carbon

of carbon dio
d returning flu
to the first colu
said gaseous
raction, and th

4,759,787

PURIFYING MOLTEN SL

Winterburn, Tynemouth, United Kingdom, ass
Group PLC, Wallsend, United Kingdom

PCT/GB85/00499, § 371 Date Jul. 7, 1986, §
1986, PCT Pub. No. WO86/02919, PCT
1986

Filed Nov. 4, 1985, Ser. No. 897,63

rity ions in the melt are made to migrate into said inner wal and from the inner wall towards an outer wall of the vessel, by applying a polarizing potential across said walls, the polarizing

4,759,788

HEAT STRENGTHENE

eter Ward, Garswood, England, assigno
ers P.L.C., St. Helens, England

Filed Jun. 26, 1987, Ser. No. 66,4

Claims priority, application United Kingdom

is features
nace for producing heat strength

4,759,789

OXIME ETHERS AS HERBICIDAL SAFENERS

Martin, Basel, and Urs Fricker, Gelterkinden, both of zerland, assignors to Ciba-Geigy Corporation, Ardsley,

Continuation-in-part of Ser. No. 490,055, Apr. 29
4,566,901. This application May 6, 1985, Ser
Claims priority, application Switzerland,

4,759,790

HERBICIDAL SULFONAMI

stensen, Wilmington, Del., assigno
rs and Company, Wilmington, Del.
er. No. 788,711, Oct. 23, 1985, Pat. No
hich is a continuation-in-part of Ser. No. 676,89
84, abandoned. Th
Int. Cl.⁴ A01

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Ciba-Geigy Corporation, Ardsley
ed Jun. 11, 1986, Ser. No. 872,7

PHENYLSULFONYLUREAS
Willy Meyer, Riehen, Switzerland, assignor to Ciba-Geig
poration, Ardsley, N.Y.
Filed May 26, 1987, Ser. No. 53,915

N-PHENYLSULFONYL-N'-PYRIMIDINYL-UREAS
Willy Meyer, Riehen, and Konrad Oertle, Therwil, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Division of Ser. No. 810,010, Dec. 17, 1985, Pat. No. 4,671,819, which is a continuation-in-part of Ser. No. 590,928, Mar. 19 1984, abandoned. This application Mar. 27, 198

Claims priority, application Switzerland,
Aug. 11, 1983, 4393/83
Int. Cl.⁴ C07D 239/69; A0

[illegible]
E: HOD OF APPLICATION
Sunnyvale, Calif., assignor to Staut
Company, Westport, Conn.
Continuation of Ser. No. 814,443, Dec. 30, 1985, abandon
This application Mar. 30, 1987, Ser. No. 31,6

PROCESS FOR PREPARING
N-METHYLOL DERIVATIVES O
4-AMINO-1,2,4-TRIAZINE-5-ONE
Stanley Tocker, Wilmington, Del., assign
Nemours and Company, Wilmington, D
Division of Ser. No. 681,260, Dec. 13, 1984, Pat
This application May 5, 1986, Ser. No. 8
tion of the term of this patent subsequent

USE AS HE
ningen; Hermann Rempfl
Schurter, Binningen, all of Switzerlan
Geigy Corporation, Ardsley, N.Y.
Division of Ser. No. 676,962, Nov 30, 198
This application Oct. 16, 1986, Ser
Claims priority, application Switzerl
/84 Apr. 18, 1984, 1945/84

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Iroaki Umeda; Mamoru Suzuki; Akira Hasegawa, and
Hata, all of Tokyo, Japan, assignors to Jujo Paper Co.,

4, Jun. 9, 1986, Pat. No. 4,749,
r. 30, 1987, Ser. No. 44,987
Japan, Jul. 9, 1985

Nostitz, Widenmayerstr. 17, D-8

Hans H. Luginsland, and Franz Rosendahl, both of
Fed. Rep. of Germany, assignors to Kronos Ti
Leverkusen, Fed. Rep. of Germany

Filed Feb. 25, 1987, Ser. No. 18,426

Claims priority, application European Pat. Off.,

PREPARATI

enstein, and
and, assignors t

gusuke Ochi; Tatsuya Mizunuma; Kimio Kurosaka,
Wakayama; Tatsuo Izumi, Izumisano, and Shuichi F
Wakayama, all of Japan, assignors to Kao Corporation

Oct. 31, 1986, S

Yoshisuno Ou
poration, City

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Okazato, Tokyo; Kozo Kounosu, Shimofusa; Tadashi Inoue Shimofusa; Takanori Hita, Shimofusa, and Masatsugu Moejima, Tokyo, all of Japan, assignors to Fujikura Cable Works Ltd., Japan

Continuation of Ser. No. 603,995, Apr. 26, 1984, Pat. No 759,605, which is a continuation of Ser. No. 244,620, Mar. 17 1981, abandoned. This application Dec. 16, 198

942,065

ation Japan, Mar. 24, 1980, 55-03730

Cl.⁴ C23C 22

an aluminum conducto

having a thickness of

boehmite film by stean

4,759,806

PROCESS FOR MANUFACTURING PEARLI WIRE AND PRODUCT MADE THER

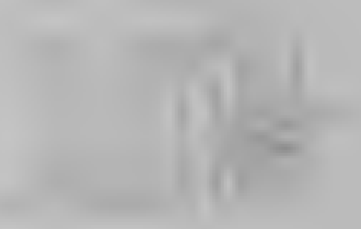
Paul Dambre, Kemmel, Belgium, assignor to N.V

Filed Dec. 31, 1986, Ser. No. 948,0

Claims priority, application United Kingdom,

mation temperature range and wire to a smaller diameter, ch

, Espoo, Finland, assignor



not exceeding 3

4,759,60

DENING CA

AMSHAFT

easant Ridge, Mi

Filed Dec. 22, 1986

Int. Cl.⁴ C2

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ao Matsuo, Kobe, and Norihasu Sawada, Itsude, both
Japan, assignors to Somar Corporation, Tokyo, Japan
Filed Feb. 6, 1987, Ser. No. 27,230
priority, application Japan, Jun. 7, 1985
985, 60-240235, Oct. 26, 1985, 60-24022

Hamme-Mille, Belgium, assignors to Raychem
Menlo Park, Calif.
ontinuation of Ser. No. 341,359, Jan. 21, 1982, abandone
hich is a continuation-in-part of Ser. No. 231,000, Feb. 4, 198
andoned. This application Jun. 28, 1984, Ser. No. 625,9

hristopher J. Jackson, Toledo, and Mark H. Brosman,
wood, both of Ohio, assignors to Libbey-Owens-For

N STRESS CARRYING STRU
r, 1235 - 19th St., Hermosa Beac
ed Jul. 11, 1985, Ser. No. 753,93
the term of this patent subseq

ack D. Bauer, Cuyahoga Falls; Lawrence E. Chlebina, Ak
Brady G. Greenlease, Akron; James D. Stokes, Akron; Mi
chael W. Smith, Mogadore, and Robert N. Steagall, deceased
late of Diamond, all of Ohio (by Betty C. Steagall, administra-
trix), assignors to The Goodyear Tire & Rubber Company,
Akron, Ohio
Continuation-in-part of Ser
abandoned. This application M
Int. Cl.⁴ B

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UMI

LAMINATING

ans P. Kasper, and David R. Williams, both of Pulaski,
assignors to Schoeller Technical Papers, Inc., Pulaski, N
Filed Jul. 7, 1986, Ser. No. 882,73
Cl. B32B 31/00; A61F

nting the degree of pene
thermoplastic resin layer by employing an
ich said resin sets rapidly after
base paper such that said base
tripped from said thermoplas
the release force between said base
layer is 5 to 200 g/in.,
ating to a laminate of said base paper
layer such
ed between

RMO-TRANSFER PRINTING EQUIP
rai Hiroshi, 27-4, Minamioi 5-chome, Shinag
u, Japan (140)
Filed Sep. 17, 1985, Ser. No. 776,873

comprising
a base for supporting a

d temperature sensor for sensing the temperatu
th surface portion of said roller located betwee

APPARATUS FOR DISPENSING
ngram, Salinas, Calif., assignor to Tamma
alinas, Calif.
Filed Aug. 7, 1986.

adhesive tape

having a cutter head mo
second tape support mea
er of said arms,
with said second tape support means d
cutter head and said first tape supp
adhesive tape moves along a path from said first tape support means over said second tape support means to said cutter head with the adhesive side of the tape exposed away from said second tape support means, and
th said cutter head having tape engaging means and pivot
between a tab forming position in which the adhesive
ape is folded back upon itself and a tape cut

voting means in operative engagement
said lever unit for pivoting said cutter head from said tab forming position to said cutting position as said lever unit

Paul D. Calvert, Lewes; Raymond M. Elliot, Bu
Brian D. Moyle, Lewes, all of England, assig
British Petroleum Company p.l.c., London, Engl
ivision of Ser. No. 7,002, Jan. 23, 1987. This ap

Claims priority, applicat
8612318; May 20, 1986, 8

ope, Jr., Danbury, Conn., assignors to Internati

being arranged in a T-shape, with sa

posed beneat
conducting an is
horizontal surface layer, and
removing said photoresist cont
surfaces of said doped crystal
process for the fab
erentiated semic
ding a gallium arse
conductor structure including an alu
ide horizontal surface layer dispos

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arsenide

eath the

e R. Lane, Portland,

if the

being exposed, and said depositing metal upon the as to reduce the size of said away

from said dielectric material

4,759,823

IOD FOR PATTERNING PLZT THIN FILMS

lanis, Rio Rancho, and Sylvia D. Mancha, Albuquer-
assignors to Krysalis Corporation,

, 1987, Ser. No. 57,099
G03C 15/00, 25/06, C23F 1/02

sintered film of a

processed photoresist
d pattern covering the sin-
from the PLZT family, in a
taining from about 62% to
35% to about
om 0.02% to
a period of

ung af.

4,759,824

APPARATUS FOR THE MANUFACTURE OF COMBUSTIBLE CASES BASED ON NITROCELLULOSE AS SHAPED AMMUNITION FOR TUBULAR WEAPONS

Dietmar Müller, Heinrich-Lilienfeinweg 2, D-7500 Karlsruhe 41, and Fred Volk, Haydenstr. 17, D-7519 Walzbachtal both of Fed. Rep. of Germany

Filed Jan. 3, 1986, Ser. No. 816,113

Claims priority, application Fed. Rep. of Germ
85, 3500667

rs and plasticizers by shaping the cylindrical case and out excess water, the apparatus comprising
le shaft screw extruder with kneading and pressing ents arranged directly downstream of a suspension ntake and water outlet, with at least one binder injection nozzle arranged in one of a vicinity of the kneading segment and downstream thereof and a female die for shaping a tubular structure arranged at the outlet, length cutting means provided downstream of the female die, and a pressing means for finally densifying and calibrating the tubular structure wh
cutting means are co
wherein means are pro
cutting means and the pressing means to follow an vance movement of the extruded tubular structure

4,759,825

ROTARY EVAPORATOR

Bela Medvey, Prälat Zistlstrasse B, D-8000 München 2, and Laszlo Rozsnoki, D-8961 Wildpoldsried, both of, Kemptener Strasse 10, Fed. Rep. of Germany

Filed Jul. 23, 1986, Ser. No. 889,104

Claims priority, application Fed. Rep. of Germ
1985, 3526644

Int. Cl.⁴ B01D 3/08, 3/10, 3/42

U.S. Cl. 202—181

1. An evacuated rotary evaporator comprising
a heated rotary flask for evaporating sample solution,
a condenser connected to the rotary flask for conden
vapor,
a sample supply passage having first and sec
first end connected to the rotary flask,
metering means, connected to the second end of the sample supply passage, for metering predetermined volumes of sample solution into the second end of the sample supply
age during operation of the evaporator;
g means for selectively isolating the metering
he sample supply passage,
ceptacle connecte

ing means for selectively closing the output condui
ecuum system constructed and arranged so as to c
usly maintain the rotary flask, condenser, sa

passage, distillate collector receptacle and output conduit under a substantially constant vacuum, whereby sample solution is continuously introduced into the sample supply passage and distillate is removed from the output conduit without interrupting operation of the evaporator

4,759,826

PROCESS FOR PURIFYING THIONYL CHLORIDE

Gary M. Sellers, Buffalo, N.Y., assignor to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Oct. 23, 1986, Ser. No. 922,435

Int. Cl.⁴ B01D 3/34

3 Claims

1. A process for purifying an impure mixture containing om about 70% to about 85% of thionyl chloride and impurities including sulfuryl chloride, sulfur monochloride, sulfur chloride and sulfur dioxide, said process comprising the steps

(a) vaporizing said impure mixture in a first reboiler in a first distillation apparatus at a temperature of from about 78° C. to about 138° C. in the presence of sulfur to reduce the sulfur dichloride content of the mixture,
(b) contacting the vapor from the first reboiler with activated carbon in a catalyst vessel for at least 0.05 seconds to reduce the sulfuryl chloride content of the vapor,
(c) passing the vapor from the catalyst vessel into the bottom of a first distillation column,
(d) withdrawing distilled vapor from the top of the first distillation column and condensing the distilled vapor,
(e) returning part of the condensed vapor to the first distillation column as reflux without contacting the activated carbon,
(f) passing par
apparatus an
the presence

WITH AN ADJUSTING DEVICE AND ITS METHOD

asushi Okada; Toyohei Nakajima; Toshiyuki
Nobuyuki Oono, all of Wako, Japan, assignor
Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 25, 1986, Ser. No. 934,590

Claims priority, application Japan, Nov. 29, 1

Int. Cl.⁴ G01N 27/58

U.S. Cl. 204—1 T

1. An oxygen
ing:
an oxygen con
walls made of
and arranged
second gas ret
electrodes provided on inner and outer surfac
said walls in a first portion forming said first g
chamber so as to sandwich each of said walls, one of said walls being operative as an oxygen pump element and the other of said walls being operative as a sensor cell element, and second set of electrodes provided on inner and outer surfaces of each of said walls in a second portion forming said second gas retaining chamber so as to sandwich each of said walls, one of said walls being operative as an oxygen pump element and the other of said walls being operative as a sensor cell element; and
first current supply means for supplying a first cu
one pair of electrodes of said first set of electro
are provided on said wall operative as the oxygen pump element, and controlling a magnitude of said first current so that a voltage generated across another pair of said first set of electrodes, which are provided on said wall operative as the sensor cell element, is maintained constant, whereby said magnitude of said first current represent
first detection value of said oxygen concentratio
second current supply means for supplying a seco
across one pair of electrodes of said second se
trodes, which are provided on said wall operative as
oxygen pump element, and controlling a magnitude of s
second current so that a voltage generated across ano
pair of said second set of electrodes, which a
on said wall operative as the sensor cell eleme
tained constant, whereby said magnitude of sa
current represents a second detection value of
concentration,
switch control m
nected betwe
and said first a
supply of one of said first and second currents alternatively,
first variable resistance means connected between said
rrer
second

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NG GLUCOSE

ong C. Young, Weston; Kenneth Gary, Belmont; Handani Winarta, Waltham, and Chia-Chun Chen, Wayland, all of Mass., assignors to Nova Biomedical Corporation, Waltham,

ise in a polarographic
l assembly comprising
trode having a laminated mem-
tacting face of said sensor

a permeability sufficiently great
assage of hydrogen peroxide from said glucose
er to the face of said sensor electrode
of assaying glucose in solution which com-
l solution into contact with the
assembly as claimed in any of

measuring the current between said electrodes at a time at least as great as 5 seconds after initial contact and substantially less than the time required for the current to become onstant, and

paring the measured current with that of a standard
ng a known concentration of glucose
entical conditions

4,759,829

ICE HEADER AND METHOD OF MAKING SAME

rank J. Fuccello, Sr.; Frank Z. Hawrylo, both of Trenton, and Robert E. Harwood, Princeton, all of N.J., assignors to RCA Corporation, Princeton, N.J.

Division of Ser. No. 749,269, Jun. 27, 1985. This application
Oct. 15, 1987, Ser. No. 108,664
Int. Cl.⁴ C25D 5/02

depositing a
removing sa kel layer and said first
layer in th g area.
ed copper or co
onto the entire l

4,759,830

PROCESS FOR THE PRODUCTION OF POLYCRYSTALLINE SILICON COATINGS BY ELECTROLYTIC DEPOSITION OF SILICON

Hans R. Grüniger, Olten; Rudolf Kern, Maggia, and Paul Zurich, all of Switzerland, assignors to Ciba-Geigy AG, Ba Switzerland

Filed Aug. 18, 1987, Ser. No. 87,635
Claims priority, application Switzerland, A

Int. Cl.⁴ C25D 3/66

204—39 12 Claims

process for the production of a thin coating of elemental silicon on an electrically conductive material suitable as an electrode by electrolytic deposition of the silicon from a salt melt, by a procedure in which the salt melt contains (a) a
(b) an aluminium halide, (c) an alkali metal or
ide and (d) a halide of a transition metal and the
rried out at temperatures from 100° to 350° C
sphere, optionally under

4,759,831

ELECTROPLATING APPARATUS PARTICULARLY F ELECTRO-DEPOSITION OF ALUMINUM

Siegfried Birkle, Hochstadt/Aisch, and Johann Gehring, Spardorf, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Apr. 2, 1987, Ser. No. 33,263
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1986, 3622554

U.S. Cl. 204—1

an inert gas space above a bath of electrolyt
means for charging the space with an inert ga
lock for charging and discharging of goods from the electroplating tank, said lock having a lock chamber equipped with an inner lock door and an outer lock door and means fo
lock chamber wit
ng the lock cha
amber so that t

N OF BISCARBAMATES A BISCARBAMATES

Dieter Degner, Dannstadt-Schauernheim, and Heinz Hannebaum, Ludwigshafen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rhienland-Pfalz, Fed. Rep. of Germany

Filed Feb. 13, 1987, Ser. No. 14,635
Claims priority, application Fed. Rep. of Germany
1986, 3606478
The portion of the term of this patent subsequen
2004, has been disclaimed
Int. Cl.⁴ C25B 3/0

R 5 Claims

ms or ester, carbonyl or nitrile groups, wh
ochemically oxidizing a formamide of

where X has the abovementioned mean

4,759,833

CTROLYTIC METHOD OF SIMULTANEOUS PREPARING DIARYLIODONIUM SALT AND ALKOXIDE SALT AND METHOD OF PREPARING ESTER OF AN AROMATIC ACID

ael M. Lentz; Michael R. Cushman; James R. Overton, and David D. Cornell, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 2, 1987, Ser. No. 1
Int. Cl.⁴ C25C 1/0
04—59 R

compound, a solvent a

Geldrop, and Rudolf van Hardeveld, Geleen, all of Netlands, assignors to Stamicarbon B. V., Geleen, Netherla

Filed Jul. 13, 1987, Ser. No. 72,738
Claims priority, application Netherlands, J

Int. Cl.⁴ C25

U.S. Cl. 204—78

1. Process for the electrochemical oxid

METHOD FOR DISC ELECTRODE STRUCTURE

Peter R. Klinkowski, Norwalk, Conn., assignor Incorporated, Stamford, Conn.

Richa
Silicon

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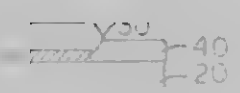
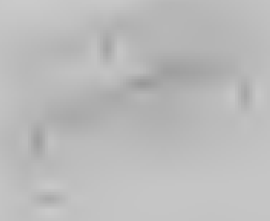
...d thin film through said insulating





OR ELECTROLYTICALLY
MODE A CONTINUOUS
WIRE FOR ELECTRICAL
USE

ques Lefebvre, Voiron; Philippe Gimenez, Grenoble; Gabriel Colombier, Saint Egreve; Armand Golay, Moirans, and Jean ...frany, Nancy, all of France, assignors to Aluminium ...ey, Paris, France

...al use, comprising, in the ...wire (4), a first tank contain... ...mpartment, a second tank (1) ...g bath, the two tanks each being ... pairs of flat electrodes (7), each pair ...es disposed on respective sides of the ...ir respective ...nected to a ...plating bath ...racterised in ...movable an...

CONTAINER FOR AN ELECTROPHORETIC SUPPORT MEDIUM

David G. Mayes, Beaumont; James R. M. Sanford, Vidor, and Eric H. Petersen, Beaumont, all of Tex., assignors to Helena Laboratories Corporation, Beaumont, Tex.

Filed Jan. 5, 1987, Ser. No. 35...

Int. Cl.⁴ B65D 83/30, 6/00, G01...

...04—299 R

1. A container for protecting and enclosing an electrophoretic support medium having a base sheet with at least two opposed major surfaces and a layer of an electrophoretic gel adhered to one of the major surfaces of the base sheet, said container comprising:

a top portion, a bottom portion and a hinge portion between said top and bottom portions, all of said portions being integrally connected to permit relative movement between said top and bottom portions through the action of said hinge portions;

said bottom portion having an upwardly opening rece... therein for accommodating the support medium, said bottom portion having a bottom, and two opposed sides, a back side and a front side which surrounds the recess and are perpendicularly connected to said bottom;

said bottom portion further including a laterally and outwardly extending rim having a first leg forming a surface parallel to and spaced from said bottom and a second leg forming a sealing surface which is spaced from and surround said two opposed sides, back side and front side,

said top portion having a downwardly opening recess therein, including a top and depending side walls perpendicularly connected to said top and surrounding the downwardly opening recess,

the side walls of said top portion terminating in a flang... having a first leg forming a surface parallel to and spaced from said top and a second leg forming a sealing surface which is spaced from and surrounds said top side walls,

...b protruding from each of the two opposed ... bottom portion into the recess provided ... nub being spaced apart from the bottom of said bottom portion, said nubs being engageable with the base sheet of the support medium so that when the support medium is placed in the recess between the nubs and the bottom of said bottom portion, the support medium is retained therein.

4,759,839

...CESS FOR PRODUCING PITCH USEFUL AS RAW MATERIAL FOR CARBON FIBERS

...eiji Ishikawa, Chiba; Shuuichi Hirano; Yukio Matsumoto, both of Ichihara; Tutomu Kaibara, Urawa; Kenji Sugiyama, Ube, and Takuo Morishige, Onoda, all of Japan, assignors to Ube Industries, Ltd., Yamaguchi and Seibu Oil Company Limited, Tokyo, both of, Japan

Filed Oct. 3, 1986, Ser. No. 915,992

Claims priority, application Japan, Oct. 8, 1985, 60-222831

Int. Cl.⁴ C10C 3/00, 3...

...S. Cl. 208—40

...A process for producing a pitch useful as a raw ma... ...rbon fibers, which comprises

...at-treating in an autoclave, under pressure, at least ... ...tarting material consisting essentially of heavy oil ... treated product of heavy oil and sel... consisting of a heavy oil obtained by ... ...ing of a petroleum, a distillate or a residual oil obtained by distilling the heavy oil, and a pitch obtained by heat-treating any of the foregoing materials at a temperature of 350° to 550° C.,

(2) separating and removing insoluble, coke-like and catalyst substances from the reaction mixture obtained in step (1) to obtain a first treated mixture,

(3) heating the first treated mixture obtained in step (2... ...temperature of 250° to 400° C. and removing light... ...tions which distill at said temperature to obtain a se... treated mixture, and

(4) treating the second treated mixture obtained in step ...

4,759,840

...ICLE CLASSIFIER

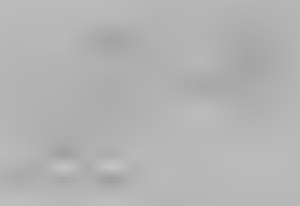
...allace J. McIntyre, and John H. Gottschalk, both of Goder... Canada, assignors to Domtar Inc., Montreal, Canada

...ontinuation of Ser. No. 714,902, Mar. 22, 1985, abandon...

This application Oct. 16, 1986, Ser. No. 91...

Int. Cl.⁴ B07B 4/02

...09—135



...ar stream of air to a focal point to accelerate said laminar ...eam of air to produce a high velocity stream of air, allowing ...h velocity stream of air to generate near said fo... ...turbulent stream ... ...ist 4000 and a me... ...econd, directing said turbulent stream ... ...y perpendicular to gravity, allowing ...esively bonded particles to fall across ...e upstream end of said turbulent stream to fragment them ...nto fragmented particles; confining the uppermost portion of ...id stream to produce a gradual, regular and continuous ...rizontal and downward expansion and thereby producing a ...dually, continuously, horizontally and downwardly de...asing velocity of said stream, said gradually, continuously, ...ally and downwardly decreasing stream velocity en... ...rther displacing of said fragmented particles, to clas... ...as to allow each of said fragmented particles to define...

...RODUCE ROCK AND DEBRIS

John F. Flodin, P.O. Box 1578, Moses La...

...iled Jun. 30, 1986, Ser. No. ...

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4,759,842

FUEL FILTERING DEVICE

7 Amestoy Ave., Encino, Calif. 91316, and
wartz, 32132 Canyon Ridge Dr., Westlake Vil

Filed Dec. 4, 1986, Ser. No.
Int. Cl.⁴ B03C 1/02; B01D 27

nnected by sidewalls

said central space including a body
e ends and porous filtering sidewalls
entral cavity in communication with

outside said
cle filter for trapping magnetically attractable parti-

cket means sealing said particle filter around and in
utlet in said central space and
wardly from said casing side-
id bracket means further in
the outside of and seals one of
ds and also including a bar
aded at opposite ends, which
rough said casing and particle
tably received in said inlet and
id particle filter in place and
id casing sidewalls for ready
ind magnet, and
sing space between said plate
d magnet being disposed in a recess at
l casing, said magnet having an open
rmit free flow of liquid through said
ing biasing the
resist move
pening of said casing and to

4,759,843

FOR REDUCING TAIL CHROMATOGRAPH

V. Allington; Abolghassem Y. Tehrani, and John N.
, all of Lincoln, Nebr., assignors to Isco, Inc.,

of Ser. No. 745,512, Jun. 17, 1985, abandoned, which is
uation-in-part of Ser. No. 585,298, Mar. 1, 1984, Pat.
This application Oct. 5, 1987, Ser. No. 104,422
term of this patent subsequent to Oct. 8, 2002,

Int. Cl.⁴ B01D 15

bular side walls between the

whereby said first fitting opening conforms substant

said bottom side having a second fitting opening subs
tially the size of the inlet to the flow cell and be
in diameter than said first fitting opening

said fitting holding a
the packing in the c
in place, and
said fr

4,759,844

PORTABLE WATER PURIFICATION SYSTEM

Mitchell Lipschultz, Ft. Lauderdale, and Alfred J. Lipschultz, Coconut Creek, both of Fla., assignors to Aquathin Corp., Ft. Lauderdale, Fla.

Filed Mar. 21, 1986, Ser. No
Int. Cl.⁴ C02F 9/00

portable domestic wa
te under conventional water main pressure on
dispensing purified water, the system com-
nation

a housing provided with an upper re
water and a lower process compartm
a reverse osmosis unit in the form of a replace
and positioned in the process compartment,
an ion exchange unit in the form of a replaceable cartridg
and positioned in the process compartment
an activated carbon filter in the form
tridge and positioned in the process
each of the reservoir and the reverse osmosis unit and the
exchange unit and the activated carbon filter provi
with an inlet and an outlet,
n means connecte
and the inlet

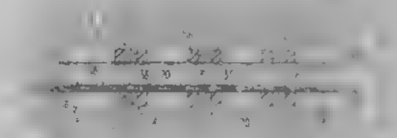
unit, and between
activated carbon filter

4,759,845

PLURAL FILTER APPARATUS WITH FILT GASKET

Michael Selesnick, In & Out Farm, 258 Durham Rd
Pa. 18

Filed Oct. 21, 1987, Ser. No. 110,91



fluid conduit extending outwardly from an adjacent wall a
which comprises

a) a plurality of filter elements formed of filtration media
defining a central channel extending therethrough,
central channel being adapted to receive the perforate fl
conduit extending therethrough, said central channel be
larger than the perforate fluid conduit to define an interv
ing space therebetween, said filter elements further inc

(1) an inner filter element positioned about the fluid condui
and located adjacent to the wall area,
(2) an outer filter element positioned about the fluid condui
and located adjacent to the outer end of the fluid conduit,
(3) at least one intermediate filter element positioned about
the fluid conduit and located between said inner filte
element and said outer filter element,

) a plurality of gasket means positioned adjacent said filter elements to prevent bypassing flow of fluid adjacent said filter elements, each of said gasket means comprising a filtration flange defining a central hole adapted to receive the fluid conduit extending therethrough and a spacing means secured with respect to said filtration flange, said spacing means defining a central aperture therein in registration with respect to said central hole to also be adapted to receive the fluid conduit extending therethrough, said central hole and said central aperture together defining a central opening through said gasket means, said intervening space of said filter elements being large enough to receive said spacing means therein, each of said gasket means further comprising

(1) an inner gasket member positioned between said inner filter element and the adjacent wall area and with said central opening thereof extending about said perforate fluid conduit, said inner gasket member including
(a) an inner filtration flange in abutment with respect to the adjacent wall area, and
(b) an inner spacing means positioned within said interv
ing space of said inner filter element to m
inner filter means in spaced relation with resp
perforate fluid conduit;

an outer gasket member positioned outside said oute filter element with said central opening thereof extending about said perforate fluid conduit, said outer gasket member including
(a) an outer spacing means positioned within said intervening space of said outer filter element to maintain said outer filter means in spaced relation with respect to the perforate fluid conduit;
(b) an outer filtration flange secured with respect to said outer spacing means and positioned outwardly therefrom;

diate gasket assembly means, posit
ter filter element and said interm
en said inner filter element and

an central ope
ereadjacent,
first intermediate filt

and to selectively secure the filt
respect to the perforate fluid co

BACKWA

Anthony S. MacFarlane, Lig
British Petroleum Company p.l.c., London, England
Continuation of Ser. No. 859,909, May 5, 1986, abandoned
application Sep. 2, 1987, Ser. No. 93,119
Claims priority, application United Kingdom, M
8511000

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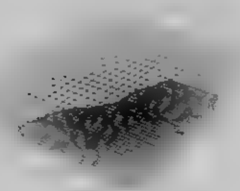
P THE SORPTION OF A PETROLEUM PRODUCT FROM A LIQUID

bury, 28785 Oak Point, Farmington Hills, Mich.

Continuation-in-part of Ser. No. 557,863, Dec. 5, 1983, Pat. No. 4,512,890. This application Nov. 26, 1984, Ser. No. 675,076
rtion of the term of this patent subseque
002, has been disclaimed
Int. Cl.⁴ B01D 15



zeting said feathers

4,759,848

N OF CRYOGENIC LIQUIDS B ULTRAFILTRATION

John S. Segura, West Chester; David E. Connor, III, Douglassville, both of Pa., and Howard D. Brodbeck, New Milford, Conn., assignors to MG Industries, Valley Forge, Pa.

Continuation-in-part of Ser. No. 694,135, Jan. 23, 1985, ndoned. This application Oct. 2, 1986, Ser. No. 914,297
Int. Cl.⁴ B01D 13/00
10—6

4,759,84

PROCESS AND A DEVICE FOR THE TREATMENT, BY MEANS OF OZONE, OF FEED WATER FOR REVERSE OSMOSIS

Hans Baumann, Staretschwil; Hans-Peter Klein, Rieden b. Baden, and Samuel Stucki, Nussbaumen, all of Switzerland, assignors to BBC Brown Boveri AG, Baden, Switzerland
Filed Mar. 10, 1987, Ser. No. 24,006
Claims priority, application Switzerland, Nov. 3, 1986, 996/86

1. A process for effecting reverse osmosis with feed water harged with ozone which comprises feeding water to a mix ne to said mixing vessel, feeding the g vessel to a direct contact time co eding the effluent therefrom to a residual ozone de n vessel, and feeding the effluent therefrom to a reverse device, the effluent from said reverse osmosis device

4,759,850

MEMBRANE PROCESS FOR SEPARATING METHANOL FROM METHANOL/HYDROCARBON SOLUTIONS

Brian A. Farnand, and Henry Sawatzky, both of Ottawa, Canada, assignors to Energy, Mines and Resources Canada, Ottawa, Canada
Filed Jan. 12, 1987, Ser. No. 2,19

ATER TREATMENT POLYMERS AND METHO USE THEREOF

n Chen, Newtown, Pa., assignor to Betz Laboratories, In Trevose, Pa.

Continuation of Ser. No. 864,049, May 16, 1986, Pat. No. 4,659,481, which is a continuation of Ser. No. 545,563, Oct. 26, 1983, abandoned. This application Apr. 13, 1987, Ser. No. 37,484
The portion of the term of this patent subsequent to Dec. 24, 2002, has been disclaimed.
Int. Cl.⁴ C02F 5/14
S. Cl. 210—697 13 Claims

1. A method of controlling the deposition of calcium phosphonate on the structural parts of a system exposed to an aqueous medium containing said calcium phosphonate under

mprises the stru

4,759,852

ACID TO INHIBIT PROS BY CHLORINE IXTURES

hael G. Trulear, Naperville, Ill., assign
Company, Naperville, Ill
Filed Oct. 15, 1987, Se

4,759,85

POLYACRYLONITRILES WITH A L ROCESS FOR THEIR PREPARATION AND THEI SUITABLE USE

bor Krakkay, Munich; Tatjana Poggi, Saal, and Ernst Schbert, Kelheim/Donau, all of Fed. Rep. of Germany, assignors Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 832,453, Feb. 21, 1986, Pat. No. 4,683,28 which is a continuation-in-part of Ser. No. 636,965, Aug. 2, 198 abandoned. This application Jun. 26, 1987, Ser. No. 66,53 Claims priority, application Fed. Rep. of Germany, Aug 983, 3328276
Int. Cl.⁴ C

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4,759,854

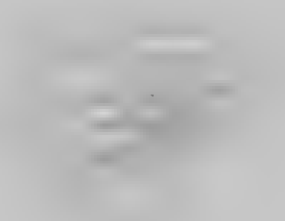
GRIT TRAP

Reginald A. F. Wilson, Stourbridge, United Kingdom, assignor to Jones & Attwood Limited, England

Continuation of Ser. No. 914,590, Oct. 2, 1986, abandoned, which is a continuation of Ser. No. 662,437, Oct. 15, 1984, abandoned. This application Sep. 23, 1987, Ser. No. 99,639

Claims priority, application United Kingdom, Nov. 2, 1983, 8329213

Int. Cl.⁴ C02F 1/24



method of separating grit from a flow of sewage con- organic materials and grit comprising providing (a) a er having an inlet for a flow of sewage con- aterials and grit and having an outlet through l organic materials from which grit has been wer portion of said settlement cham- and merging downwardly into a grit hamber through a common opening and (b) a rotat- e disposed slightly above said grit storage chamber djacent said common opening to provide a small ween the periphery of the disc and the interior chamber, admitting a flow of sewage contain- erials and grit into said settlement chamber, g said disc to create an upward flow of fluid in said nent chamber above the periphery of said disc to effect vard movement of organic materials whilst permitting into and through said annular gap into r and removing by suction from said vhen desired grit collected therein, harged outside said settlement ntaining said organic material om which grit has been removed then passing th

4,759,855

D FOR DETACKIFICATION OF OPERATION WASTES

Herbert J. Kaiser, St. Louis, Mo., assignor to C ton, Pittsburgh, Pa.

Filed Jul. 24, 1987, Ser. No. 77,52

Int. Cl.⁴ C02F 1/5

U.S. Cl. 210—712

1. A method for detackifying paint which contacts and is captured by wat a paint spray booth operation, which compris

(a) adding to said circulating water an effectiv alkaline zinc solution consisting essentially by weight, a zinc source selected from the g and zinc oxide, 1 to 20%, by weigh fe, 1 to 10%, by weight, ammonium hloride, and the balance water, thereby precipitating zinc hydroxide,

(b) allowing said precipitated zinc hydroxide to absorb paint particles, thereby forming paint/zinc hydroxide complexes, and

(c) separating said paint/zinc hydroxide complexes from

LATION PROCESSES

David Farrar; John R. Field; Peter Flesher, all of West Yorkshire, and Tony Whittaker, South Yorkshire, all of England, assignors to Allied Colloids, Ltd., England

Continuation-in-part of Ser. No. 728,782, Apr. 30, 1985. This application Apr. 23, 1986, Ser. No. 855,519

Claims priority, application United Kingdom, Apr. 30, 1984, 8410971; Apr. 25, 1985, 8510496; Oct. 29, 1985, 8526614

Int. Cl.⁴ C02F 1/56

tion to said aqueous suspension to floc solids of the suspension, wherein the p subjected to shear in the aqueous compos to the suspension or is subjected to shear during flocculation of the suspension and the polymeric material comprises cross linked water swellable polymer that is sheared to an intrinsic viscosity of at least 4 dl/g that is formed from a water soluble monomer or blend of water soluble monomers and the aqueous composition of the polymeric material is selected from compositions that are a stable homogene the shearing causes an increase in intrinsi 1 dl/g, (b) ous com auses an

(c) compositions that include non-dispersible, in mer and the shearing converts it to a stable compositio

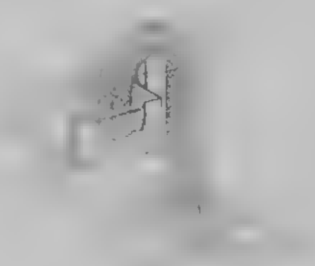
4,759,857

N SIPHON FILTER M

na, Paseo de los Descubr L.C.P., Mexico (64610)

d Aug. 4, 1986, Ser. No 892,99

Int. Cl.⁴ C02F 1/10



1. A method for separation of particles of suspended undissolved solids present in a liquid having a top surface, the method

intersecting at least one portion of an open siphon membe

edium, said porous medium containing a plurality of rconnected internal passageways some of which are rticles of the suspended undis- l some of which are dimen- given size, so that the ed undissolved solids are either prevented from ving through the porous medium or are captured by it, ning at least one other portion of said porous medium er than the top surface of the liquid and out

ejecting from the poro free of the suspended

4,759,858

CESS AND APPARATUS FOR THE FORMAT A FILTER CAKE

Werner Stahl, Landau, Fed. Rep. of Germany, assignor to rcher Beuteltuchfabrik AG, Ruschlikon, Switzerland

Filed Sep. 20, 1985, Ser. No. 778,431

Claims priority, application Fed. Rep. of German 3435…

Int. Cl.⁴ B01…

id of gas passed throug

tion, Chicago, Ill.

of Ser. No

This application Aug. 2

Int. Cl

U.S. Cl. 252—18

1. A lubricatin

both a carbonate and a

TWO-CYCLE ENGINE OI

mitu Tanaka, Kamifukuoka, Hiromiti Seiki, both of Ichihara, Honda Giken Kogyo Kabushiki Kaisha and Idemi Company Limited, both of Tokyo, Japan

Continuation of Ser. No. 636,843, Aug. 1, 1984, abandoned application Feb. 3, 1987, S

Claims priority, application Japan

Int. Cl.⁴ C10…

gura; Katsumi Seki Takashima, Yokohama, il Co., Ltd., Tokyo, Japa

Continuation-in-part of Se abandoned. This application

Claims priority, applicati

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s being with an alkali me
an alkaline earth metal, or with an amine or alkanola
mine of 1-24 carbon atoms, said amide being with an
amine or alkanolamine of 1-24 carbon atoms,
mponent (II) which is 0.1 to 20 percent by weight of an
rmula HO-(-$C_nH_{2n}O$-)$_m$ H where m is
and n is an integer of 3 to 10,
nent (III) which is 1 to 50 percent by weight of
r; and
nent (IV) which is a mineral oil, a synthetic lubricant,
fatty oil, or a combination thereof in an amount
efficient to make up the balance of the agent, wherein
omponent (III) is present in a solubilized state in the

$_{20}$-alkyl, phenyl
kyl, C_7–C_{14}-aralkyl or C_7–C_{14}-alkaryl and in which R
R^{11} independently of one another have the meanings of R^{9}
are additionally C_2–C_{20}-alkyl which is substituted by a
droxyl or cyano group, or are C_3–C
rupted by one to five —O—, —S
)— and is unsubstituted or substitu
being necessary for the several heteroato
to be separated by at least one methylene g
or R^{11} is C_2–C_{12}-alkenyl, C_2–C_{12}-alkinyl
substituted by on
—COOR^{18}, or a g

,P-BIFUNCTIONALIZED O'-SUBSTITUTED PHENOLS

ans R. Meier, Marly, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

ontinuation of Ser. No. 741,389, Jun. 5, 1985, abandoned. This application Jul. 30, 1987, Ser. No. 80,149

Claims priority, application Switzerland

Int. Cl.^{4} C10M *135/30*, C07C

r a radical

C_{20}-alkenylmethyl, C_3-C_{20}-

in which X is —
, in which
R^{16} and R^{17} ind
hydrogen

ethyl, C_3–C_{20}-alkinylmethyl, C_4–C_{12}-cycloalkyl, phenyl, 1-
r 2-naphthyl, C_7–C_{14}-alkaryl, C_7–C_{14}-aralkyl, C_5–C_7-cycloal-
yl which is substituted by hydroxyl in the 2-position or radi
als of the formula —C(R^6R^7)—(CHR^8)$_m$—
—OCO—R^{15} or

4,759,863

ILICONE-BASED WORKING FLUID COMPOSITION

Shigeru Mori, and Satoshi Kuwata, both of Gunma-Ken, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1987, Ser. No. 136,330

priority, application Japan, Dec. 23, 198

Int. Cl.^{4} C10M *105/76, 131/02*

cone-based working fluid composition which com-
a conventional silicone fluid having a viscosity suitable for use in a working fluid and (B) an amount effective to improve the boundary lubrication and durability of the working fluid of 1,2,3,4,8,9,10,13,13,14,14-dodecachloro-

4,759,864

ORROSION-INHIBITED ANT
FORMULATION

alter A. Van Neste, Amandsberg; Jean P. Maes, Merelbeke, both of Belgium; Jerome W. Darden, Irvine, Calif., and Carol A. Triebel, Austin, Tex., assignors to Texaco Inc. & S.A. Texaco Petro, N.V., White Plains, N.Y.

Filed Sep. 4, 1987, Ser

onsisting essentially of:

(a) a major amount of a water soluble liquid alcohol freezin point depressant,

) from 0.1-5.0 weight pecent of a C_6-C basic acid or the alkali metal salt there weight percent

PASTY ACID DETERGENT COMPOSITION

arrokh B. Malihi, Piscataway, N.J., assignor to Colgate-Palmolive Company, New York, N.Y

Filed Nov. 6, 198

Int. Cl.^{4} C

—175

ethod of manufac
y detergent comp
comprises the steps of: first dry mixing a li
sulfonic acid with soda ash, and then neut
alkyl benzene sulfonic acid containing mixtu
of caustic to form a gluey pasty mass, and su
thereto an active polycarboxylic acid and a

4,759,866

RIMARY HINDERED AMINOACIDS FOR PROMOTED
ACID GAS SCRUBBING PROCESS

Larry J. Shulik, Somerville; Guido Sartori; W. S. Winston H both of Annandale; Warren Thaler, Flemington, and George E. Milliman, Fanwood, all of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

ntinuation of Ser. No. 852,322, Apr. 15, 1986, abandoned. This application Sep. 8, 1987, Ser. No. 93,734

Int. Cl

Oakland, Calif.
Continuation of Ser

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cted from the group consisting of aliphatic alcohols, gly
hers and polyols, said compound not being a nonionic det
gent surfactant, wherein the nonionic surfactant is a C_6–C_{18} primary or secondary, straight or branched chain alcohol condensed with 3–15 moles of alkylene oxide, and contains less
an 2% by weight of non-alkoxylated alcohol and less than
k by weight of mono-alkoxylated alcohol.

IQUID CRYSTALLINE CARBONIC ACID ESTER AND IQUID CRYSTAL COMPOSITION CONTAINING SAME

Kouji Ohno; Kazutoshi Miyazawa; Hiromichi Inoue; Shinichi Saito, and Takeshi Inukai, all of Yokohamashi, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Oct. 28, 1986, Ser. No. 928,295

Claims priority, application Japan, Nov. 14, 1985, 60-255757

t. Cl.⁴ G02F *1/13*; C09K *19/20*, *19/12*, *19/52*, C07C *40/20*

5 (

COMPOSITION

h Fujimura, Fussa, Japan, assignor to Casio Computer Co. Ltd., Tokyo, Japan

Filed Aug. 5, 1985, Ser. No. 762,615

Claims priority, application Japan, Aug. 14, 1984, 59-169819
in 19, 1985, 60-8254

Int. Cl.⁴ C09K *19/30*, *19/54*, *19/12*, *19/20*

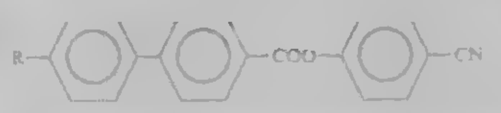
S. Cl. 252—299.63 ms

1. A liquid crystal composition, comprisi

wherein each of R^1 and R^2 is indepen
having 1 to 8 carbon atoms,
a second liquid crystal material containing
2 to 20% by weight, based on the total weight of the cor

to 8 carbon atoms,
total weight of the
tal compound of the

ght, based on the total weight
least one liquid crystal comp



where

HYDROCARBYL(POLYPHENOL)-POLY(2,2,6,6-TETRAMETHYL PIPERIDYL-1,3,5-TRIAZINES) AS STABILIZERS FOR SYNTHETIC POLYMER COMPOSITIONS

Yutaka Nakahara, Okegawa, and Etsuo Tobita, Urawa, both of Japan, assignors to Adeka Argus Chemical Co., Ltd., Urawa,

Division of Ser. No. 884,147, Jul. 10, 1986. This application Sep. 11, 1987, Ser. No. 98,430

Claims priority, application Japan, Jul. 16, 1985, 60-15655

Int. Cl.⁴ C09K *15/16*; C08

S. Cl. 252—400.24

1. A stabilizer composition for enhancing the
synthetic polymers to deterioration upon exposure
heat comprising a hydrocarbyl(polyphenol)-poly
having the formul

ydrocarbyl group having the valence n
selected from the group consisting of hydro
alkenyl, cycloalkyl, hydroxyalkyl and alkoxy having from one to about twelve carbon atoms; acyl having from about one to about twelve carbon atoms; and oxyl.

wherein R_4 is ng from one
m the group c

about eighteen carbon atoms,

R_7 and R_8 are selected from the group consisting
gen, alkyl having from one to about twelve
atoms, cycloalkyl having from three to abo
carbon atoms; and aryl having from six to a
teen carbon atoms, and R_7 and R_8 taken together as alkylene in a five to six member ring including the nitrogen atom in the ring;

R_2 and R_3 are selected from the group co
gen and lower alkyl hving from one t
atoms and

4 and at least one
from the group
ganic phosphites

4,759,872

WOOD PRESERVATIVES

Hans-Norbert Marx, Buehl-Weitenung; Reimer Goettsche, Ba
en-Baden, and Wendelin Hettler, Sinzheim-Muellhofen, all
Fed. Rep. of Germany, assignors to Dr. Wolman Gmt
Sinzheim, Fed. Rep. of Germany

Filed Mar. 20, 1987, Ser. No. 28,578

Claims priority, application Fed. Rep. of Germany
1986, 3609544

Int. Cl.⁴ C09K *15/32*, *15/18*, A01N *59/20*; A61K *33/34*

S. Cl. 252—400.53 4 Cl

ADHESIVE COMP

William A. Gros, Baton Rouge, La.,
cal Company, Midland, Mich.

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LD SURFACT

England assignor

g a
ber
the

ABLE SOIL RELEASE PROMOTI
LIQUID DETERGENT COMP

chael C. Crossin, Kendall Park, N.J., assignor to Colga
molive Company, New York, N.Y.
Continuation of Ser. No. 713,945, Mar. 19, 1985, Pat. No
4,661,287, which is a continuation-in-part of Ser. No. 539,079,
Oct. 5, 1983, abandoned, Ser. No. 539,080, Oct. 5, 1983,
ndoned, and Ser. No. 628,697, Jul. 18, 1984, abandoned, said
Ser. No. 539,079, and Ser. No. 539,080, each
continuation-in-part of Ser. No. 481,904
bandoned. This application Apr. 20, 198
he portion of the term of this patent subsequen
2004, has been disclaimed
Int. Cl.⁴ C11D 1/83, 3/37, 3/2

enzymatic liquid detergent
of a nonionic detergent, a

lar weight in the
olyoxyethylene

ADDITIVES

E. D. Hildreth, Dill Road, R.D. 3, Belleville, Oh
Karl Heyman, 10 Crestmont Rd. 3M, Montclair
Filed Jul. 31, 1986, Ser. No. 892,772
Int. Cl.⁴ C11D 1/62
52—54

gent formulation

hydr

urfactant obtained fro

CESS FOR THE BATCH FINE PURIFICAT
URANIUM OR PLUTONIUM RECOVERED
REPROCESSING PROCESS FOR IRRADIAT
NUCLEAR FUEL AND/OR FERTILE MATERIALS

dmund Henrich, Dettenheim; Ulrich Bauder, Bruchsal; R
hold Huefner, Neuthard; Willi Roesch, Linkenheim, a
Klaus Ebert, Heidelberg, all of Fed. Rep. of Germany, assi
ors to Kernforschungszentrum Karlsruhe GmbH, Karlsru
Fed. Rep. of Germany
Filed Mar. 5, 1985, Ser. No. 708,60
aims priority, application Fed. Rep. of G
Int. Cl.⁴ C01G 4
Cl. 252—62

tric acid uranyl nitrate s
elements, fission- and corros
wherein a major portion of

a first separatio
original solut

f the UNH

Laurence H. Cadoff, Wilkins Townshi
and David B. Smith-Magowan, Wash
The United States o

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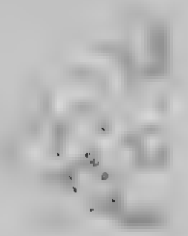
nuclear waste and
melted at abou the
said composit



ming silicon

in diameter, so that said liquid car-
of said dissolved hydrolyzed glass-

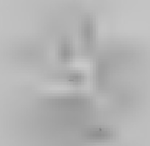
4,759,880
ALKANOARACHIDONIC ACIDS
Kyriacos C. Nicolaou, Havertown; Nicos A. Petasis, Drexel Hill; Wen-Sen Li, Philadelphia; Tamara Ladduwahetty, Philadelphia; Jared L. Randall, Philadelphia; Stephen E. Webber, Philadelphia, and Pedro E. Hernandez, Philadelphia, all of assignors to Research Corporation, N.Y.

4,759,881
PROCESS FOR THE PREPARATION OF TRIFLUORODICHLOROETHYL-SUBSTITUTED ACID AND ZINC COMPOUNDS
Robert W. Lang, Pratteln, Switzerland, and Bernd Klinge Inzlingen, Fed. Rep. of Germany, assignors to Ciba-Gei Corporation, Ardsley, N.Y.
Filed Mar. 3, 1986, Ser. No. 835,481
Claims priority, application Switzerland, Ma
Int. Cl.⁴ C07C
U.S. Cl. 260—502.6

1. A process for the pr

wherein X is —COOH, —C(S)O

GAS HUMIDIFICATION PROCE
Philip L. Reid, Duncan, S.C., assignor to Mocon trols, Inc., Minneapolis, Minn.
Division of Ser. No. 696,733, Jan. 31, 1985, Pat. No. 4,632
This application Sep. 19, 1986, Ser. No. 908,605
Int. Cl.⁴ B01F 3/04



having water and beads therein through the bott thereof.

rating the temperatures of said

ction of said fi
passing said portion of said first gas downwar
another conduit through said column and out

g a portion of said second gas into a sec
olumn having water and beads therein throug
thereof;
g said portion of said second gas vertically upward
thin a conduit through the height of said second column
and subsequently passing said portio
vertically downwardly within a passa

y equilibrating the

said second column;
ng said portion of said second gas from said second
olumn by passing said portion of said second gas dow
wardly through another conduit through said sec
olumn and out the bottom thereof;
emoved portion of said s
ion of said second gas
m a mixed second ga

4,759,883
RE COMPENSATED METERING SYSTEM
dy, Caro, and Mark S. Swanson, Cass City, bot
signors to Walbro Corporation, Cass City, Mic
Filed Mar. 12, 1987, Ser. No. 24,987

chamber, fuel duct means to conduct fuel from the c
the mixing passage, and a fuel metering system associa
said fuel duct means including variable restriction means
varying the effective flow cross-sectional area of said fuel d
means to modulate the mass flow rate of fuel to said mix
passage, said variable restriction means comprising sup
means and fuel metering means defining said flow cross-s
tional area and respectively having first and second diffe

end thereo
passagewa
flow com

the
is c

APPARATUS FOR GAS WEL
oharu Michimae; Akira Amamiya, bot
Shozo Onogi, Oyabe, all of Japan, assign
Club, Inc., Haydenville, Mass. and M.C.

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CONSUMABLE CASE CARTRIDGE

arl F. Kurtz, Denver, Colo., assignor to Golden Powder of Texas, Inc., Dallas, Tex

ontinuation of Ser. No. 187,534, Sep. 15, 1980, abandoned. This application Mar. 11, 1983, Ser. No. 473,974

Int. Cl.⁴ C06B 21/0C

2 Claims

r quantity of finely divided short fi

, and

ed cartridge with bla

d of the cartridg

4,759,886

METHOD OF ASSEMBLING SHAPED CHARGE PROJECTILES WHICH EMPLOY FLUTED LINER

ames C. Daugherity, Buncombe, Ill., assignor to O

ion, Stamford, Conn.

Filed Jan. 28, 1987, Ser. No. 7,51

ethod of assembling a shaped charge pr fluted liner, comprising the steps of

explosive propellant r

dy

forming a shaped cavity in the propellant mate

iding a fluted hollow liner at least partially into formed shaped cavity; and

d) consolidating the propellant material in the projectile body by compressing a resilient conical sleeve against the fluted hollow liner so as to press the loaded liner deeper into the cavity to thereby consolidate the propellant material by application of indirect pressure applied through the

riginal shape adapted t

mposed of material wh

OF SHAPED BODIES FROM SILICON GRANULATES

Joachim Geissler, Stammham; Deiter Helmreich, Burghausen; Roland Luptovits, Emmerting; Maximilian Semmler, and Burkhard Walter, both of Burghausen, all of Fed. Rep. of Germany, assignors to Heliotronic Forschungs- und Entwicklungs-gesellschaft für Solarzellen-Grundstoffe mbH, Burghausen, Fed. Rep. of Germany

Filed May 12, 1986, Ser. No. 862,006

Claims priority, application Fed. Rep. of Germ

85, 3518829

thereby causing said grains to melt on the bond with adjacent grains via wetting, so coherent but still porous compound materi

removing the compound material from s zone thereby hardening the material

haped body

us for producing shaped

mprises

a seatable receiver conta

a piston associated wi

ably disposed below

for supplying silicon grains into said chambe

grain supply r

4,759,888

AUTOMATICALLY INSTAL TING GROUTED ROCK BOLTS

arel J. H. Brest van Kempen, 4920 Emigration Canyon, Lake City, Utah 84108

Filed Jun. 26, 1985, Ser. No. 748,813

Int. Cl.⁴ B28B 7/38; B29B 7/42; E21D 20/02; F16B 31/06

U.S. Cl. 264—35 3 Claims

1. A method of using torque control to improve quality and a grouted rock bolt installation b grout and thereby completeness

monitored torque rises sufficiently, as indicate in the torque value, above a predetermined ve of completion of said mixing.

4,759,889

PELLETIZER CONTROL

Raymond G. Voss, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 19, 1984, Ser. No. 663,019

l first signal to

when said first

is in said first state if the pressure represented signal is less than the pressure represented signal and is in said second state if the p by said third signal is equal to or great represented by said fourth signal, a

means for actuating said means f said cooling fluid in response said means for controlling the actuated to introduce said co chamber when said fifth sig state to said second stat

1. In a pelletization process in which lized to force a synthetic thermoplasti rough an extrusion chamber by means in which said synthetic thermopl passes from said extrusion chambe cutting chamber and in which said cutting chamb polymer material pelletized synthetic the said cutting chamber, the

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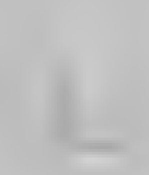
extruder as a reference value for the torque transfer between the extruder screw of said screw extruder surrounded with said mixture and the cylindrical housing said screw extruder,

b) comparing the course of the drive torque said drive torque being measured at a screw shaft of said extruder screw, or the course of a measured quantity proportional to said drive torque with the course of said reference value determined from said mass pressure; and

c) when said course of said torque at said screw shaft and said course of said reference value do not coincide, using said reference value as a measure of the change of said torque by foreign bodies or the like in said mixture to trigger an operation interrupting signal shutting off of said screw extruder



for

f a

object in said mass causes an increase in the torque

ped at said shaft, said cylinder having a plurality of

l pins projecting into said cylinder and cooperating with said worm to plastify said mass,

pressure sensor on one of said pins for

sure of said mass in said cylinder,

torque-sensing means operatively connected with said worm for detecting the torque on said worm; and

signal-processing means responsive to said pressure sensor and said torque-sensing means for comparing the detected torque generated over a period of time with the mass pressure detected over the course of the same period and

presence of said foreign object upon a devia

que generation pattern from the detected

METHOD AND APPARATUS OF FOAM MOLDING PACKAGING USING A VERTICAL MOLD

e Reichental, Bethel, Conn., assignor to Sealed Air Corporation, Stamford, Conn.

Filed Nov. 10, 1986, Ser. No. 928,965

Int. Cl.⁴ B29C 67/22, 39/10

S. Cl. 264—46.5 17 Claims

1. A method of molding foam in a carton comprising

providing a mold having an upper surface and four verti-

le walls, with at least two opposite side walls each

g a recess defining a vertically extending mold cav-

, which is open in the horizontal direction and also open in the vertical direction so as to communicate with said upper surface of the mold;

ering the mold with a plastic sheet;

ng an open-ended carton having upper and lower

ver the mold while pos

er flaps in a

avit.

ring said at least two lower flaps to th

sed relation to said mold cavities.

arton's upper flaps to form the

to completion of the foaming of th

and

rors to foam and become substa

iformingly rece

4,759,892

METHOD AND APPARATUS FOR ALIGNING WITH HONEYCOMB STRUCTURE

Roy T. Bonzo, Painted Post, N.Y., assignor to Cor

Works, Corning, N.Y

Filed Jul. 15, 1981, Ser. No. 283,735

B23P 19/04 B32B 3/12 B28B 1/14 B2

1. A method of fitting a first member having a

protrusions extending therefrom to a second membe

honeycomb surface with a multiplicity of openings extending therethrough, said protrusions engaging selected ones of said openings when said first member is fitted to said second member, comprising the steps of:

mber with said

lected openings

e combination comprising

oneycomb structure having a

and a multiplicity of cells form

through and between said end fa

a body having a plurality of protrusions extending

and positioned with its protrusions against one

said honeycomb structure,

means for limiting the lateral motion of said

end face and for permitting rotation of

protrusions relative to said end face,

4,759,893

MOLDED PARTS

Manfred Krauter, Holzwiesenweg 7, 7062 Rudersberg

berg, Fed. Rep. of Germany

Filed Mar. 19, 1985, Ser. No. 713,651

Claims priority, application Fed. Rep. of Germany

taking a fiber

bubbles have be

tributed uniformly

ng a mold and positioning a layer of fibrous material adjacent the inner wall of the mold, said mold hav

a closed end and an opposite end throug

can be positioned in the mold, said m

having gaps at said opposite end through which air and

s material can be removed from the article being

oning a second layer of fibrous material

said net during the molding operation pr

age layer to receive and permit the flow

from said fibrous layers during the molding op

oducing a liquid flowable synthetic compo

mold in contact with said second

al adjacent the closed end of the

sitioning an expandable pressure bag

rom the second layer, uniformly press

synthetic composition into said fibrous

ing said pressure bag by introducing a pr

thereinto, said bag initially engaging

and net adjacent the closed end of the m

resulting in the composition replacing

layers, said replaced air escaping into said drain

provided by said net and flowing therefrom out

the molded article at the opposite end of said m

ULTRA-HIGH CONTROLLED TEMPERATURE WITH AN ELECTRIC

Richard A. McCorkle, South Salem, N.Y., assig

tional Business Machines Corporation, Armonk, N

Continuation of Ser. No. 795,160, Nov. 5, 1985, ab

which is a continuation of Ser. No. 460,740, Ja

andoned. This ap

William S. I

end Pa

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measurement end a
couple wire supporting sides oppositely disposed with respect to each other,

a pair of interlocked, metallically dissimilar wire loops being in a single point of interlocked contact contiguous to said measurement end of said body and being disposed in contact with a respective one of said wire supporting side

wire guide means carried by said supporting sides for holding said wire loops in a predetermined disposition along said sides and with respect to said measurement end; and

wire loop tensioning means including spring means and hooks coupled thereto carried by said body and attached to the ends of said interlocked loops oppositely from their

l point of contact to hold said loops in tension and said
ntact in compression

METHOD AND APPARATUS FOR IMPROVING FLUX REDUCTION FACTORS

illiam A. Boyd, Pittsburgh, Pa., assignor
Electric Corp., Pittsburgh, Pa.
Filed Oct. 31, 1984, Ser. No. 666,69
Int. Cl.⁴ G21C 7/06

ted nuclear reactor including a nu
in a pressure vessel, said nuclear core
ssemblies extending to the pe
el having at least one axial or
nethod for reducing the value
to which said welds are exposed comprising

areas of the core periphery causing each of
aid welds to be exposed to high neutron flux levels
ermining the axial and circumferential locations of the
ore causing each of said welds to be exposed to high

t of moderating displacer material
consisting of boron carbide, cad-
m, indiu
e the amount of the high neutron fluxes to which said welds are exposed to acceptable levels at each of the core areas and

sitioning said displacer material in a parallel arrangement within said fuel assemblies at the core periphery substantially axially and circumferentially adjacent to said welds exposed to high neut

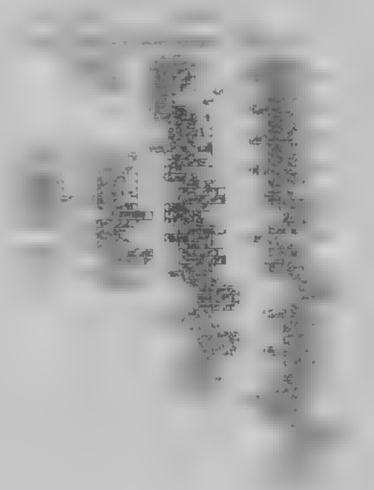
In a coolant moderated nuclear reactor including a nu-
positioned within a pressure vessel, said nuclear core
ng a plurality of fuel assemblies extending to the pe-
ereof, said pressure vessel having at least one axial or
eld thereon, means for reducing the amount
which said at least one axial or circumferen-
ron flux reducing means being
of said nuclear core and inter-
es at the core periphery sub-

4,759,897

SYSTEM FOR DETERMINING BOW, TWIST AND T OF A NUCLEAR FUEL ASSEMBLY

Ralph W. Tolino, Wilkinsburg, Pa., and Charles R. Mumaw,
West Newton, N.C., a to Westinghouse Electric Corp

Filed Aug. 29, 1986, Ser. No. 902,233
Int. Cl.⁴ G21C 17/06



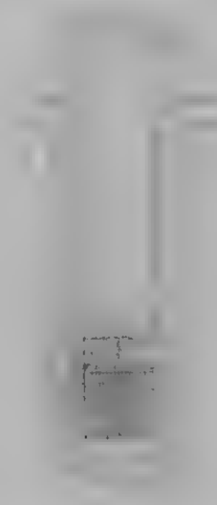
15. Apparatus for determining external dimensional relationships of a nuclear fuel assembly including an array of elongated fuel rods engaged in transverse grids and extending between top and bottom nozzles, wherein each of said grids and nozzles has external planar faces arranged in a rectangular configuration, said apparatus comprising: support means, carriage means mounted on said support means for cooperation therewith to define mutually perpendicular X and Y and Z reference axes and XY and XZ and YZ reference planes, positioning means on said support means for fixedly positioning the fuel assembly in a selected orientation with the faces of the top nozzle disposed parallel to said Z axis, said carriage means and said XY plane being movable parallel to said Z axis and generally longitudinally of the fuel assembly among a plurality of measuring locations respectively disposed adjacent to said nozzles and said grids with said XY plane defining a measurement plane intersecting the faces of the adjacent nozzle or grid, a plurality of measuring means mounted on said carriage means for movement in said XY plane into and out of measuring engagement with intersecting faces of the adjacent nozzle or grid for establishing on the faces a plurality of measurement points and measuring the distances of said points from said XZ and YZ planes, control means for controlling the movement of said carriage means and said measuring means, and processing means for calculating from said measured distances the loca-
f the center of each of the grids and nozzles in its a
and further cal
the fuel assemb

,759,894

TION NUCLEAR REACTOR II IMPROVED CORE COVER PLUG

r Lemercier, Le Puy Sainte Reparade, France,
ommissariat a l'Energie Atomique, Paris, France
Filed Sep. 26, 1986, Ser. No. 912,003
aims priority, application France, Oct. 3, 1985

and also vertically axed liquid metal sampling tubes, said fer
rule supporting a horizontal core cover plate traversed by said sleeves and tubes; said core cover plug also comprising, at least one grid located below the core cover plate; each grid having a horizontal, annular, peripheral plate connected in fixed manner to the core cover plate and also having a plurality of hori
zontal modular plates separate from said peripheral plate, ea
of said modular plates being fixed to at least one of the slee
and/or tubes, said modular plates and said peripheral
of the same gri



REACTOR WITH NATURAL CONVECTION COOLING SYSTEM

Stanley L. Koutz, San Diego; Leonardo Cavallaro, La Jolla, a
Davorin D. Kapich, Carlsbad, all of Calif., assignors to GA
Technologies Inc., San Diego, Calif.
Filed Aug. 29, 1984, Ser. No. 645,90
Int. Cl.⁴ G21C

6—29

uclear reactor comprising
d vessel containing a pool of sec
ctor core located within said pool, sa
upper end and a lower end, and having a plurality o
passages extending therebetween to enable upward flow of coolant through the core;

nlet conduit system for directing primary coolant to said
wer end of said core, said inlet conduit system having
or more openings formed therein to enable fluid com-
ation between said inlet condui

means for effecting flow of sa
t system,
located above said core
upper end of said core a
it to an exterior outlet pipe, s
having one or more openings
munication between said outl
t; and

reduction means for reducing fl
onduit system adjacent all of said

TION OF REACTIVITY IN WATER-COOLED NUC

George E. Peterson, Fremont; Rand
and Carl P. Ruiz, Fremont, all of
lectric Company, San Jose, Cal

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4,759,90

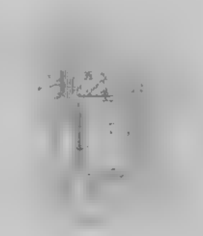
NUCLEAR REACTOR INSTALLATION ARRANGED IN THE CAVITY OF A PRESSURE VESSEL

Sindred Wachholz, Gorxheimertal, and Ulrich Weicht, Weinheim, both of Fed. Rep. of Germany, assignors to Hochtemperatur-Reaktorbau GmbH, Fed. Rep. of Germany

Filed Jul. 8, 1985, Ser. No. 752,544

Claims priority, application Fed. Rep. of Germ
984, 3425144

Int. Cl.⁴ G21C 15



stallation located in the
with a vessel roof and
ontained within the
a cooling gas and is
in the pressure vessel
n loops each containing a heat exchanger, a
gas conducting conduits connecting the heat
and the blower with the reactor core, several
xiliary loops connected by means of two gas conducting
onduits with the reactor core for removal of decay heat, such
is generated by a rapid insertion of control rods into the

lity of independent,
bsorbing part located
ssel and a heat emitting part located
vessel,
ooling gas, causing the gas to flow,
associated with said heat pipes,
means for interrupting the flow of cooling gas associated with said means for blowing
a heat sink associated with the heat emitting part of the heat pipes of each bundle,
an external cooling loop associated with each heat sink
lly including a circulating pump and

USE OF ELECTROCHEMICAL POTENTIAL TO PREDICT RADIATION BUILDUP ON NUCLEAR REACTOR COOLANT PIPING

Larry D. Anstine, San Jose, Calif., assignor to Advanced Process Technology, Milpitas, Calif.

Filed Oct. 7, 1986, Ser. No. 916,382

Int. Cl.⁴ G21C 9/00

7 Claims

of determining the long-term radiation levels
nuclear reactor cooling system, comprising

nical potential mea-
ed measuring elec-

chemical potential meas
nprefilmed measuring ele
cated from the same metal as the cool
(e) Collecting electrochemical potent

ntial fractions versus the logarithm of th

average of the measured values of the Co
in the cooling water by the slope deter
e; and
; the expected long-term dose rate by using

from the data in the prior art and prepared using the said

4,759,903

APPARATUS FOR AUTOMATICALLY STARTING THE DROP OF AN ABSORBING MEMBER INTO A NUCLEAR REACTOR CORE

Maurice Fajeau, Pertuis; Alain Debard, Neauphle le Chateau, and Jean-Francois Guillot, Aix en Provence, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

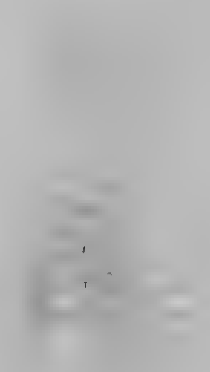
Filed Nov. 20, 1986, Ser. No. 932,631

Claims priority, application France, Nov. 28, 1985, 85 17594

Int. Cl.⁴ G21C 7/12

U.S. Cl. 376—336 12 Claims

1. In a nuclear reactor apparatus having a reactor core dis
vessel, a cooling liquid filling sa
vel, a neutron absorbing memb
tion into said core, a support means connected to said neut
absorbing member for supporting said neutron absorbing member above said core, an apparatus for automatically initiating the drop of said neutron absorbing member into said core of
ear reactor, when the l
ing in said vessel containing said reactor core drops below a given minimum level, the said absorbing member normally being suspended on said support means, wherein said apparatus comprises a tongs with at least two fingers, mounted on a supporting member and by which said neutron absorbing member is suspended on the supporting member, said tongs being able to occupy a closed position and an open position, and at least one floating member able to float on said cooling liquid, said floating member being retained and carried by sai
supporting member, so as to be able to
tween a raised position when the floating member is below the said given minimum liquid level, and a lowered position when
ve the said given minimum liquid



PRESSURIZED WATER REACTOR HAVING IN CALANDRIA ASSEMBLY

James E. Gillett, Hempfield Township, Westmoreland County, and John E. Goossen, Penn Township, Westmoreland County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 4, 1

Int. Cl.⁴

se
let,
which accommodates liquid therein under pressure and
fines an axially upward direction of liquid flow throughout a
rtion of the height of the vessel, parallel to the vessel axis,
d a radial direction of liquid flow at the prede
vation through each fluid outlet thereof, the ass
ounted within said vessel at the predetermined
ceiving the liquid flow in the axial direction and tu
the radial direction and comprising

e main structu
essel,
ll formed at its

CONSOLIDATED

John L. Walter, Scotia, and
both of N.Y., assignors t
nectady, N.Y.
Continuation

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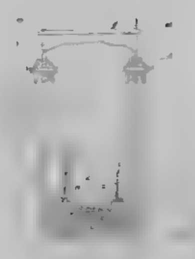


, Kazuyuki Enami, Itami, and Kazuo
shi, Osaka, all of Japan, to Sumitomo Electr
dustries, Ltd., Osaka, Japan
Filed Feb. 4, 19
priority, applica
Int. Cl

; 40–60 atomic percent of Ti
and the balance being Pd, said
martensitic transformation tempera-
bout −196° C. and about +510° C.

4,759,907

FEEDER DEVICE AND METHOD FOR ADDING SOLID MATERIAL TO A LIQUID OF VARIABLE FLOW RATE

ichard J. Kawolics, Euclid; Philip J. Zivich, and Bonnie L. Nelson, both of Mentor, all of Ohio, assignors to ELTECH Systems Corporation, Boca Raton, Fla.

Filed Oct. 31, 1986, Ser. No. 925,356

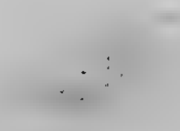
Int. Cl.⁴ C23F 11/08; B01D 12/00; E03B

42 Claims

ice for controlled addition of a treating agent l of variable flow rate, wherein the device is the feeder device by

ans for tempor

form and bein



agent to a flowing liquid of variable flow rate, wherein said assembly has a housing element for temporarily confining a

nd said liquid inlet zone, said dissolution chamber having l or at a second level, with said second level dissolutio

between said dissolution chamber and s
weir is a proportional weir.

4,759,908

POLYTHIOETHER CORROSION INHIBITO

Michael J. Incorvia, Houston, Tex., assignor to
White Plains, N.Y.

Filed Oct. 3, 1986, Ser. No. 914,90

Int. Cl.⁴ C23F 11/0

U.S. Cl. 422—14

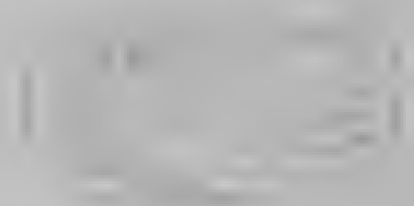
1. A water-dispersable corrosion inhibiting sol

a solvent, about 2 ppm b
an amine or a fatty e
about 10

4,759,909

AND APPARATUS STERILIZATION

lyn, Macedon, N.Y., assignor to
lon, N.Y.
Continuation-in-part of Ser. No. 417,189, Feb
abandoned. This application Oct. 17, 1986, Ser. N
Int. Cl.⁴ A61L 2/06; 2/38



ethod including a conditioning pl
rilizing chamber comprising
omprises
id chamber for a tin
while maintaining said chamber at substant
spheric pressure in order to displace air from

the desired sterilizing temperature,
(3) terminating said pressurizing step

which comprises pressu
ng steam to a pressure leve
to the desired erature and maintaining
pressure for a effect sterilization

4,759,910

TRIBUTOR FOR A LIQUID-LIQUID EXTR OR REACTION COLUMN

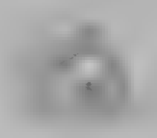
reiff, Winterthur, and Peter Mathys, Neuhausen, bot
erland, assignors to Sulzer Brothers Limited, Win
thur, Switzerland
Filed Jan. 20, 1987, Ser. No. 5,425
Claims priority, application Switzerland, Feb. 3, 1
Int. Cl.⁴ B01F 3/08

S. Cl. 422—256 18 Cla

A distributor for distributing a dispersed phase in a liquid-liquid
olar arm for rec
arm having a pl
posed metering orifices for dispersing the dispersed p at relatively high speed therefrom; and

posed exit orifices set

GAS COOL
E. Bingham;



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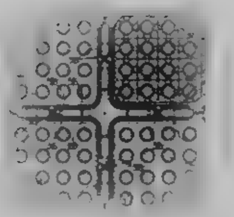


ating power
lear fuel and

4,759,913

RECOVERY OF LIQUID PHASES FROM THREE PHASE EMULSIONS FORMED IN SOLVENT EXTRACTION PROCESSES

homas A. Headington, New Orleans, La., assignor to Freeport Research and Engineering Company, New Orleans, La.
Filed Apr. 15, 1987, Ser. No. 38,726
Int. Cl.⁴ C0G 43/00
23—1 18 Claims

cient speed
gn to collect
filter, and

sity liquid

4,759,914

ETHOD FOR RECOVERING SILVER FROM PHOTOGRAPHIC FILM AND PAPE

larold Messerschmidt, Seneca, S.C., assignor to Argentu International Incorporated, Pomona, N.Y.
Continuation of Ser. No. 640,116, Aug. 13, 1984, abandoned This application Oct. 23, 1987, Ser. No. 113,141
Int. Cl.⁴ B01D 11/0
.S. Cl. 423—39 9 Claim

1. In a process for recovering silver from the emulsion of tographic materials, of the type wherein silver in the emul after dissolved to form a solution covered by a re nt wherein the step of oxidizing the

g the photographic materials with an acid from about 10% to about 26% ferric chloride up to about 2

4,759,915

PROCESS FOR EXTRACTING TUNGSTEN FROM ALKALI METAL TUNGSTATE SOLUTIONS

ai K. Kim; Alan D. Douglas, both of Towanda; Robert P. McClintic, Monroeton, and Martin B. MacInnis, Towanda, all of Pa., assignors to GTE Products Corporation, Stamford Conn
Filed Oct. 11, 1985, Ser. No. 786,453
Int. Cl.⁴ C01G 41/0
.S. Cl. 423—54 2 Claims

1. In a process for extracting tungsten from an aqueous alkali tungstate solution by solvent extraction comprising the steps of: (a) extracting tungsten values into an organic extractant containing minor amounts of bromine compounds by contacting said aqueous alkali metal tungstate solution with said organic extractant for a sufficient period of time to form a loaded organic extractant containing tungsten values and an aqueous solution, said organic extractant consisting essentially of from about 6 to about 10 percent by volume of a mixture of tri-alkyl amines having tri-alkyl chains of about 6 to 10 carbon atoms with tri-isooctyl amine being the major component in said mixture and from 90 to 94 percent by volume of an aromatic solvent consisting essentially of a mixture of alkyl benzene wherein the alkyl benzenes have molecular weights of 120, 134, 148 and the total number of carbon atoms in the alkyl chains attached to the benzene ring are either 3, 4, or 5, (b) separating said loaded organic extractant from said aqueous solution containing a portion of said impurities; (c) stripping said loaded organic extractant from step (b) by contacting with an aqueous ammonia solution to form an aqueous ammonium tungstate solution and a stripped organic extractant; and feeding said stripped organic extractant to step (a) for use as said organic extractant, the improvement comprising removing said bromine compounds from the major portion of said stripped organic and thereafter using at least a portion of the resulting bromine free stripped organic to make up at least a

---

OCESS FOR PREPARING A PIGMENTARY TITANIUM DIOXIDE

Henrik R. Heikel, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Continuation of Ser. No. 484,106, Apr. 11, 1983, abandoned. This application Jan. 21, 1986, Ser. No. 821,507
Int. Cl.⁴ C01G 23/047, 23/053
-71 18 Claims

titanium dioxide-bearing material selected from the group consisting of sorelslag, beneficiated ilmenite and chloride slag to a particle size of about 10 microns

lioxide-bearing material selected from the group c oxide, an alkali metal ca and an alkali metal oxide,

) roasting the mixture at about 700° C. to about
) digesting the roasted material in hydrochloric at 90° C. to about 110° C such that a suspen roduct in the acid is formed, and
l product at a te bout 1000° C

4,759,917

OXIDATIVE DISSOLUTION OF GALLIUM ARSENIDE AND SEPARATION OF GALLIUM FROM ARSENIC

James P. Coleman, and Bruce F. Monzyk, both of Maryland Heights, Mo., assignors to Monsanto Company, St. Louis,
Filed Feb. 24, 1987, Ser. No. 18,110
Int. Cl.⁴ C01G 15/00; C01F 28/02
U.S. Cl. 423—87 49 Claim

1. The method of dissociating gallium arsenide into a gallium-containing component and an arsenic-containing component which comprises contacting the gallium arsenide with oxidizing agent and a liquid comprising hydroxamic acid convert the gallium to a gallium-hydroxamic acid complex to oxidize the arsenic to a positive valence state.

33. A composition comprising a hydroxamic acid h particulate gallium arsenide

PROCESS FOR THE REDUCTION OF TEMPERATURE OF DIESEL S

Edwin H. Homeier, Maywood, and George C ton Heights, both of Ill., assignors to Allied ristown, N.J.
Filed Apr. 16, 1987, Ser. No. 3
Int. Cl.⁴ B01J
U.S. Cl. 423—213.5

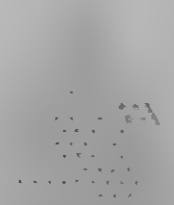
1. A process for reducing soot in an exhaust gas from gine comprising contacting composite consisting essent deposited thereon a ganic oxide selected

4,759,919

CHROMIUM-ALUMINUM-PHO MOLECULAR SIEVE CO

th M. Flanigen, White Plains; Brent Robert L. Patton, Katonah, and Stephen T. Wilson, Shr Oak, all of N.Y., assignors to Union Carbide Corporation Danbury, Conn.

Continuation-in-part of Ser. No. 599,813, A abandoned. This application Feb. 19, 1986, The portion of the term of this patent subse



wherein "R present in the molar amount of "R has a value of from represent the mole fra phorus, respect fractions bein sitional area d

TABLE A

VOL 1092
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(CAPO

(CAPO-2

4.55-4.44

4.25-4.17

2.47-2.35

4.25-4.16

2.127-2.103

TABLE H

(CAPO-31)

d(Å) Relative Inte

ABLE B

Relative Intensity

2.623-2.603

3.05-3.02

2.67-2.35

TABLE J*

(CAPO-33)

d(Å) Relative Inte

TABLE C

(CAPO-34)

Relative Intensity

16.9-17.3

20.45-20.9

23.85-24.25

26.05-26.35

27.3-27.6

(CAPO-32)

d(Å)

13.15-13.4

18.05-18.45

18.4-19.0

26.55-26.7

32.0-32.1

6.73-6.61

4.91-4.81

(CAPO-18)

10.8-11.1

17.2-17.4

21.0-21.25

23.8-22

31.8-32.5

8.19-7.97

5.16-5.11

4.23-4.18

4.08-4.04

2.814-2.785

ABLE G

(CAPO

TABLE O

(CAPO-37)

TABLE

(CAPO-39)

PHOSPHATE

Alexander Josef, and Menachem Bar-On, both

Filed Jun. 6, 198

ims priority, application

TABLE Q

(CAPO-40)

TABLE R

(CAPO-41)

(CAPO-42)

d(Å) Relative Intensity

Wolfgang Kunkel, Kleinostheim; Gusta

Kelkheim-Fischbach, all

to Degussa AG, Frankf

Germany

Filed Oct. 1, 198

Claims priori

986, 363367

TABLE T

(CAPO-44)

d(Å)

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rsed in said hydrogen perox-
rther purification,
ich said extracted working solution is
ted with water or an aqueous hydro-
r said aqueous hydrogen peroxide
nixed with a dissolving mix
f an organic solvent which is

CHROMATE IN FLAKES
S FOR ITS PREPARATION
ON AN INDUSTRIAL SCALE

iego Perrone, Cogoleto, Italy, assignor to Luigi Stoppani S.p.A., Milan, Italy

Filed Oct. 16, 1985, Ser. No. 788,161

Claims priority, application Italy, Oct. 16, 1984, 23155 A/84

Int. Cl.⁴ C01G 37/14

m dichromate dihydrate in a
st reactor at approximately 380° C to obtain molten anhydrous sodium dichromate;
ontinuously transferring said molten anhydrous sodium dichromate to a second reactor;
cooling and flaking said molten anhydrous sodium dichromate in said second reactor at a temperature comprised
ween 150° and 160° C, thereby to obtain anhydrous
um dichromate in the form of flakes

4,759,923
PROCESS FOR LOWERING SERUM CHOLESTEROL USING POLY(DIALLYLMETHYLAMINE) DERIVATIVES

George A. Buntin, and Bernard J. Scheve, both of Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Filed Jan. 25, 1987, Ser. No. 66,678

Int. Cl.⁴ A61K 31/14

U.S. Cl. 424—440 24 Claims

ring the blood se
omprising orall
ffective amou

cross-linked
gen radicals

lmethylamine) cross-linked through abou
0% to about 50% of its nitrogen radicals by heating at a temperature below about 200° C
multifunctional cross-linking agent a
quaternizing agent before, during o

(C) A quaternized poly(diallylmethylamine) cross-linked through radiation by
about 2 to about 30 megarads;

(D) Poly(diallylmethylamine) quaternized through about 1% to about 10% of its nitrogen radicals with hydropho-
aturated alkyl halide radicals having from about 6 to
t 22 carbon atoms; and
ly(diallylmethylamine) quaternized through abou
about 10% of its nitro
l radical selected fr
f cholanic acid, c
f phenanthrene

4,759,924
COSMETIC STICKS

John P. Luebbe, Lawrenceburg, Ind., and James A. Davis, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 426,586, Sep. 29, 1982, abandoned. This application Aug. 16, 1983, Ser. No. 523,522

Int. Cl.⁴ A61K *7/32* **A61N** *25/18, 25/26*

11

omposition

from about 40% to about 70% of an aliphatic
alcohol having from 2 to 6 carbon atoms an
hydroxyl groups

% of a soap,
of a hydro-alc

cted from the g
chains having

d from
bout 40% wat
than about 12

ANTIPLAQUE ORAL COMPOSITION CONTAINING PERFLUOROALKYL SULFATE SURFACTANT

Abdul Gaffar, Princeton, and Anthony Esposito, Roselle, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 8, 1987, Ser. No. 106,097

Int. Cl.⁴ A61K 7/18

U.S. Cl. 424—52

wherein x is an integer of 3-8, ea
2-4 and may be the same or diff

SUNSCREEN COMPOSITIONS

arles L. Clum, Kingston; William V. Murrary, Belle Mead and Elvin R. Lukenbach, Somerset, all of N.J., assignors to Johnson & Johnson Baby Products, New Brunswick, N.J.

Division of Ser. No. 702,703, Feb. 19, 1985, Pat. No. 4,663,15 which is a continuation-in-part of Ser. No. 375,072, May 5, 198 Pat. No. 4,514,383. This application Feb. 11, 1987

13,750

Int. Cl.⁴ A61K 7/027, 7/4

U.S. Cl. 424—59

1. A sunscreen composition com
20% by weight of the tota
its amide compound of

ed from the group c

ACCINE AGAINST POTOMAC HORSE FEVER AND METHOD OF PREPARATION THEREFORE

anta K. Dutta, Lanham, Md., assignor to Uni Maryland, College Park, Md.

Filed Dec. 22, 1986, Ser. No. 944,851

Int. Cl.⁴ A61K 39/002, 39/00, C12N 11/

Cl. 424—88

An antigen for use in an assay for the presence
comprising the product prepared from

ring human macrophage cells inocul

sing, homogen
radient, and
recovering the centrifuged band
radient of 1.8–1.9 g/ml

4,759,928
ANTIBIOTIC: TREPONEMYCIN

angamat Gurusiddaiah, Pullman, Wash., and Shrikrishna Singh, Pittsburgh, Pa., assignors to Washington State University Research Foundation,

Filed Jan. 31, 1986, Ser. No. 824,735

Int. Cl.⁴ A61K 35/74, C12P 1/06

an Claude Cherm
Celle St. Cloud; Etienne Vilmer, Sceaux, Bruno S
hes; Francoise Barre-Sinoussi, Issy les Moulin
Montagnier, Plessis-Robinson, and Willy Rozenba
all of France, assignors to Cabinet Herb & Phe
France

Continuation of Ser. No. 678,240, Dec. 3, 1984, aban
application Feb. 5, 1987, Ser. No. 1
of the term of this patent subse
002, has been disclaimed

Cl. 424—131

A method of

KILLP

ROSEMARY AND PEPPERM
mirer, and Dustin S. Nelson, both

to 50! Stamicarbon B.V., Geleen, Netherlands

Filed Apr. 10, 1984, Ser. No. 598,80

Claims
8301389
Int.

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METHOD OF REDUCING HEAT STRESS IN ANIMALS

Sebastian M. Laurent, Greenwell Springs, and Robert N. Sanders, Baton Rouge, both of La., assignors to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 846,188, Mar. 31, 1986, abandoned, which is a continuation of Ser. No. 741,572, Jun. 5, 1985, abandoned, which is a division of Ser. No. 475,370, Mar. 14, 1983, Pat. No. 4,556,564. This application Nov. 24, 1986, Ser. No. 934,457

Int. Cl.⁴ A23K [illegible]

426—2 22 Claims

[illegible] method of reducing heat stress in an animal subjected to [illegible] of heat stress causing temperature, said method com[illegible] adding zeolite A to the diet of said animal and feeding [illegible] nal during said period, a small amount of zeolite A [illegible] ich effectively reduces said heat stress.

4,759,933

METHOD FOR PRODUCTION OF PROTEIN FOOD PRODUCTS OR PROTEIN FOOD MATERIALS IN PASTE STATE AND METHOD FOR THE PRODUCTION OF FOOD PRODUCTS FROM THESE MATERIALS

Yasuzo Uchida, 2-4, 4-chome, Kanamachi Katsushika-Ku, Tokyo; Yasuo Iso, Tokyo; Hiroki Saeki, Tokyo; Hitoshi Nagasaki, Tokyo, and Makoto Itoh, Tokyo, all of Japan, assignors to Taiyo Fishery Co., Ltd. and Yasuzo Uchida, both of Tokyo.

Continuation of Ser. No. 504,315, Jun. 14, 1983, abandoned. This application Aug. 4, 1986, Ser. No. 892,748

Claims priority, application Japan, Jun. 16, 1982, 57-103362; Jun. 16, 1982, 57-103363; Jun. 16, 1982, 57-103364; Jun. 16, [illegible] 2, 57-103365, Jun. 16, 1982, 57-103366; Jun. 22, 1982, [illegible] 1; Jun. 22, 1982, 57-107072; Jun. 22, 1982, 57-107073; [illegible] 1982, 57-107074; Jun. 22, 1982, 57-107075; Jun. 22, [illegible] 107076; Jun. 22, 1982, 57-10707[illegible]

Int. Cl.⁴ A23J 1/04; A23[illegible]

426—[illegible]

[illegible] products or [illegible] om the group [illegible]

[illegible] starting material with a melting agent selected [illegible] group consisting of sodium phosphate, sodium [illegible] odium phosphat[illegible] ripolyphosphat[illegible] protein digesting n[illegible] er grinding to change the properties of the [illegible] tained in said starting material, reduce or elimi[illegible] gel forming ability of the protein contained in said [illegible] aterial, and form a paste having a measurable gel [illegible] wherein the ratio of the water-soluble protein to [illegible] when only fish meat is used as [illegible] animal and/or [illegible] used as said [illegible]

[illegible] R PREPARING HIG[illegible] ASCORBIC ACID AN[illegible]

[illegible] Ferrara, Ridge Rd., P.O. Box 441, Corn[illegible]

[illegible] tinuation-in-part of Ser. No. 778,887, Sep. 23, 1985, abandoned. This application Nov. 13, 1986, Ser. No. 930,256

Int. Cl.⁴ A21D [illegible]

U.S. Cl. 426—21 9 Claims

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he valid tab[illegible]

[illegible]FING MATERIALS AND METHOD OF PREPARATION

[illegible]icoye, Wauwatosa, Wis.; Walter H. Fly, Las Vegas, and Henry Goldstein, Brookfield, Wis., assignors to [illegible] Brewing Company, Milwaukee, Wis.

Filed Apr. 30, 1985, Ser. No. 728,831

Int. Cl.⁴ C12C 3/00; A23L 1/221

[illegible] age

[illegible]g alpha acids and cellulosic hop material and an amount of alkali borohydride sufficient to reduce said alpha acids, said [illegible]xture having a pH above about 10.5; heating the mixture at [illegible] about 85° C. to convert the [illegible] alpha acid salts, lowering the [illegible] onvert the reduced iso-alpha [illegible] to cause them [illegible]d, then isolat[illegible]

[illegible]ids and which is useful as an anaesthe[illegible]

[illegible]

[illegible]G HIGH FIBER EXPANDE[illegible] [illegible]ALS

[illegible]N.Y., assignor to General Foods [illegible]

Filed Sep. 19, 1985, Ser. No [illegible]

Int. Cl.⁴ A23P 1/1[illegible]

[illegible] for producing a high fiber content, ready-to-[illegible]al of the type produced by admixing water [illegible]dients, including an amount of bran [illegible]er content within the range of 3 to 9 [illegible] weight in the ready-to-eat breakfast cereal product and extruding the mixture under time and temperature conditions sufficient to produce expansion of the cereal dough upon exiting a cooker-extruder, the improvement [illegible]rporating a bran material in the cereal dough [illegible] bran material having an average particle size [illegible]0 microns which upon expansion after exiting [illegible]er extruder will produce a ready-to-eat [illegible] density of from 0.15 to 0.40 grams per [illegible]

4,759,943

[illegible] OF FOOD MEALS MADE FROM ANIMAL BY-PRODUCTS

William M. Ross, Jr., Moravian Falls, N.C., assignor to Holly Farms Poultry Industries, Inc., Wilkesboro, N.C.

Filed Aug. 23, 1985, Ser. No. 769,166

Int. Cl.⁴ A23K 1/1[illegible]

[illegible]426—646 3 Claims

[illegible]ure of finely [illegible]f animal feed [illegible]eal formed from rendered animal by-products according to protein and mineral content and separating the classified meal into desired fractions having respectively a mineral content [illegible]her than that of the starting mixture and a protein content [illegible]f the starting mixture, said method consisting [illegible]

[illegible] made [illegible]sifier

a rotati[illegible]

a rotating crosscurrent fan within the housing positioned coaxially beneath and in communication with the strewing plate for providing an upwardly flowing air current,

a fines outlet in communication with the crosscurrent fa[illegible]

[illegible]

plate whereby the strewing plate imparts a centrifugal momentum to the finely ground particles and throws the particles outwardly off of the strewing plate,

(c) subjecting the outwardly thrown particles to the upwardly flowing air current provided by the crosscurren[illegible] fan,

(d) directing a first group of outwardly thrown particles which are least affected by the upwardly flowing air current towards the coarse outl[illegible]

(e) dir[illegible]les which are mo[illegible] affec[illegible] current towards t[illegible] fines outlet

(f) collecting and removing th[illegible] the coarse outlet, and

(g) collecting and removing the s[illegible]ond group of p[illegible] from the fines outlet whereby the first group is primarily composed of more dense particles of the starting mixture [illegible] feed meal having a mineral content higher [illegible]he starting mixture, while the second group is primarily composed of less dense particles of the starting mixture and forms a feed meal having a [illegible]tent higher than that of the starting mixture

4,759,944

ELIMINATION OF CHLOROHYDRINS FRO[illegible] HYDROLYZATES

Roland Fäsi, Bruetten; Giancarlo Werner, Zurich, and Ursula Wolfensberger, Fehraltorf, all of Switzerland, assignors to Nestec S. A., Vevey, Switzerland

Filed Nov. 7, 1986, Ser. No. 928,517

Claims priority, application Switzerland, Nov. 25, 1985, 5013 85

Int. Cl.⁴ A23L 1/22

U.S. Cl. 426—650 14 Claims

1. A process for eliminating chlorohydrins from neutralized liquid vegetable protein hydrolyzates prepared by hydrolyzing [illegible]getable proteins with concentrated hydrochloric acid for [illegible] a liquid hydrolyzate which is then neutralized and [illegible]les first humic insoluble substances and second colloidal particle insoluble substances comprising separating at least the first insoluble substances from the hydrolyzate and then subjecting the hydrolyzate to steam distillation under reduced pressure while keeping the density of the hydrolyzate at a substantially constant value

4,759,945

PROCESS FOR DRESSING AND/OR ENC[illegible] SEED GRAINS

Franz Nemecek, Duesseldorf; Karl-Heinz Eiteneuer, Wiehl, and Gunter Heinrich, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 7, 1987, Ser. No. 47,240

Claims priority, application Fed. Rep. of Germany, May 13, 1986, 3616010

Int. Cl.⁴ A01G 5/06

U.S. Cl. 427—4 8 Claims

1. A process for dressing seed grains, wherein the seed grains [illegible]

4,[illegible]59,946

[illegible]OD AND APPARATUS FOR THE INT[illegible] COATING OF HOLLOW BODIES

[illegible]nitz, Haselstr. 15, 9013 St. Gallen, Switzerland [illegible]ion of Ser. No. 752,678, Jul. 8, 1985, abandoned. This [illegible]application Jul. 24, 1988, Ser. No. 889,108 [illegible] priority, application Switzerland, Jul. 6, 1984 [illegible]05D 7/22; B05C 11/00; B05B [illegible]

[illegible]aid body at lea[illegible]

[illegible]vement compr[illegible] of burning in t[illegible]

[illegible]ouichi Ishihara, Ebina; Mas[illegible] Shigeru Ohno, Yokohama, all of [illegible]

ha[illegible] fo[illegible]

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…ERFORMAG…

Jul. 23, 1987, Ser. No

are

zes

the

tal-

…ETALLIZING FILAMENTS

…erfield, Conn., assignor to Adv…
Inc., New Milford, Conn
Sep. 26, 1986, Ser. No. 913,00…
…Cl.⁴ B05D 3/06; C23C 16/16

…gases from the metalliz…

…arbonyl-containing gas from the…

4,759,951
…G CD-CONTAINING PHOTOELECTRO-
CONVERSION FILM IN THE PRESENCE OF A
CADMIUM HALIDE

…asataka Itoh, Nara; Masaya Nagata, Tenri; Shuhei Tsuchimoto, Nara; Atsushi Yoshinouchi, Nara; Hiroshi Wada, Nara; Katsushi Okibayashi, Sakurai, and Soji Ohhara, Kashihara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 23, 1986, Ser. No. 910,875
Claims priority, application Japan, Sep. 25, 1985 … Sep. 26, 1985, 60-215913; Sep. 30, 1985, 60-2186… 1985, 60-235084; Oct. 22, 1985, 60-236805
Int. Cl.⁴ B05D 3/12; H01L 31/…

CH…
I, an…

…h, Nesconset, N.Y., and Carlo…
…to LeaRonal, Inc., Freeport, N.…
…of Ser. No. 574,086, Jan. 26, 1984. Th…
Aug. 20, 1986, Ser. No. 898,073
Int. Cl.⁴ B05D 3/12

…r the manufacture of…
…maged by means of a…

…ntly lower than the charge on the resist image
…lyst to be repelled therefrom, but sufficiently

4,759,953
…ED FOAM APPLICATORS

…ashi, and Fuminori…
…to TDK Corporation…
…iled Dec. 8…

…Wash., assignors to The Boeing…
Continuation-in-part of Ser. No. 73…
…ivision of Ser. No. 537,335…
This applic…

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TURES MADE BY THERMO
E MATERIAL AND METAL

ck, and Richard C. Novak, Glaston
bury, both of Conn., assignors to United Technologi
ration, Hartford, Conn.
Continuation-in-part of Ser. No. 565,541, Dec. 2
ed. This application May 20, 1985, Ser. No. 736,404
Int. Cl.⁴ B05D 1/10

hi; Takao Miwa, Hitachi, and Noriyuki Kinjo,
ipan, assignors to Hitachi, Ltd., Tokyo, Japan

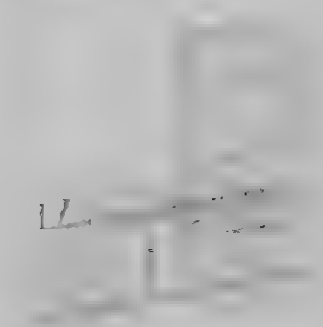
patic monomer ...

ly arranged in its backbone cha

Bruce Guy, Northville, Mich.,
Company, Inc., Farmington, Mich

h is to remain u
r reusable, (b) re
of a shape conforming to the shape of the exposed su
of said member and adapted to fit over and fitting over t
exposed surface of said member, and (e) comprised of

4,759,960
DIE BAR WITH INTEGRAL LOCKING M
ohammad F. Zaman, Fort Wayne, Ind., assign
Group, Inc., Fort
Filed



s in the die bar at or near the ends thereof s
r passing a transport cable therethrough, and
useable locking means incorporated in the die bar
engaging transport cables passing through the holes i
die bar positioned between the parallel transport cab
and having a portion of one of each parallel transport
cables passing through one of the two holes in each die

die bar,
ging the locking means so to
sing through the die bar,
sport cable along

4,759,961
ATING METHOD WITH CROSSLINKED C
FROM TWO COAT-ONE BAKE SYSTEMS
adahiro Kato, Hiratsuka; Yasuhiro Fujii, Kanagawa; Hiroak
Kiyata, Aichi; Masaru Mitsuzi, Zama, and Mototaka Iihash
Hiratsuka, all of Japan, assignors to Kansai Paint Company,
Limited, Amagasaki, Japan
ontinuation of Ser. No. 816,535, Jan. 6, 1986, abandoned. This
application May 12, 1987, Ser. No. 48,990
Claims priority, application Japan, Jan. 10, 198
ar. 13, 1985, 60-49889
Int. Cl.⁴ B05D 1/36
S. Cl. 427—407.1 11 Cla
1. In a method for forming coatings on a substrate, com

vehicle component is selected from the gr

a hydroxyl group and a carboxyl

of a resin having a hydroxyl g

mbination of a resin having a hydroxyl group an
arboxyl group in the molecule and a catalyst for pro
ng the reaction betwe
and an isocyanate gro

in the base coating has a number
of about 5,000 to about 100,000

ASTOMERIC SEALING GASKET ASSEMBLY
METHOD OF MANUFACTURE
Hans-Juergen Buecken, Monheim; Hans-Ulrich Hempel,
genfeld, and Hans Pabel, Duesseldorf, all of Fed. Rep
Germany, assignors to Henkel Kommanditgesellschaft
Aktien, Duesseldorf, Fed. Rep. of Germany
Filed Jan. 6, 1986, Ser. No. 816,549
Int. Cl.⁴ B32B 7/04, 5/16, 7/02, B05D 5/10

lat sealing gasket consisting esse
elastomeric sealing layer; a flexi

FISHING POLE
Madrid Uso, Jr., 33206 Carr
Trinidad La., both of Dan

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4,759,96-
STRUCTURAL PANEL
ed im Innkreis, and Walter A. Stechan, B
stria, assignors to Fischer Gesellschaft m.b

4,759,965
PREPARATION THEREOF AND
IRCUIT SUBSTRATE BY USE THEREOF
Hiratsuka, and Motoo Kumagai, Yokohama, both
of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 4, 1986, Ser. No. 892,320
Claims priority, application Japan, Aug. 6, 1985, 60-171862;
Aug. 6, 1985, 60-171863; Dec. 2, 1985, 60-271095; Dec. 3, 1985,
60-270663; Dec. 3, 1985, 60-270664; Dec. 3, 1985, 60-270665;
Dec. 6, 1985, 60-274568; Dec. 7, 1985, 60-275489; Dec. 8, 1985

comprising therein two or more dielectric
different dielectric constants formed by filling
vided within a dieletric porce-
aterials capable of developing

RDING MEDIUM FOR DIGITAL RECORDING
Shimozawa; Shigeyo Miyamori, and Mas
numatsu, all of Nagano, Japan, assignors to TDK
tion, Tokyo, Japan
Filed Apr. 21, 1986, Ser. No. 854,025
Claims priority, application Japan, Apr. 22, 1985, 60-86052;
Apr. 30, 1985, 60-93056; Apr. 30, 1985, 60-93057; Apr. 30, 1985,
60-93058; Jun. 20, 1985, 60-134955; Jun. 22, 1985, 60-136457
portion of the term of this patent subsequent
isclaimed.
B 5/70

1. A coating type perpendicular magnetic recording medium
intended for digital recording comprising a substrate having
ayer formed
sing a radia-
l binder and a plate magnetic material having an
article diameter of up to 0.15 μm and a flakiness of at

4,759,967
EMBOSSING PROCESS AND PRODUCT
Robert N. Bauernfeind, Brookfield, Conn., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Continuation-in-part of Ser. No. 451,124, Dec. 20, 1982,
abandoned. This application Jan. 30, 1984, Ser. No. 574,64
Int. Cl.⁴ B32B 3/28, 29

1. A paper towel or tissue product having a background embossing pattern comprising embossments spaced apart by substantially undeflected neutral planes wherein the embossments of the background embossing pattern have a major and minor axis and wherein the major axis of a majority of the embossments of the background embossing pattern is substantially aligned in the cross-machine direction of the product.

Janssen, Woodbury, Minn., assignor to Minnesota
d Manufacturing Company, St. Paul, Minn.
Filed Apr. 1, 1986, Ser. No. 846,75

—263

4,759,969
METHOD OF MANUFACTURE OF FOIL MATERIAL
AND THE FOIL MATERIAL MADE THEREBY
Helfried Sander, Nuremberg, Fed. Rep. of Germany, assignor to
Messrs. Leonhard Kurz GmbH & Co., Furth, Fed. Rep. of
Germany
vision of Ser. No. 751,374, Jul. 2, 1983, abandoned
application Oct. 31, 1986, Ser. No. 925,312
as priority, application Fed. Rep. of Germany,
11

ions from said backing foil

Richard E. Seeger, J
burn, and Joseph I
assignors to Amoc
Continuation of Ser
This applicati

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4,759,971

AYERED STRUCTURES

Wendy C. Weissberger, Alameda, and Martin B. Dines, deceased, late of Laguna Beach, both of Calif. (by Elaine Dines, legal representative), assignors to Occidental Research Corporation, Los Angeles, Calif

Filed Oct. 7, 1985, Ser. No. 785,205

Int. Cl.⁴ B32B 9/04, 5/16, 7/00

215 19 Claims

vered structure comprising a substrate layer r comprising a composite of a polymer and a pound selected from the group con- epresented by the general formula is selected from the group consisting he group consisting of Hf, Ti, Ru, Nb, Ge, Th , an atom selected from oup V of the Periodic weight of at least 30 lrogen and or- s 1 when R is

nufacture of c the group co thanes, poly yrene, polyvinyl

re of claim 11 wherein said nposed film layer at 50 mils

4,759,972

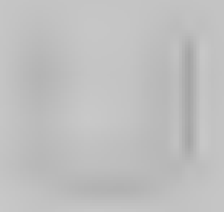
LAMINATE SHEET FOR DEEP-DRAWING D ALUMINUM CASING FOR AN ALUMINUM ELECTROLYTIC CAPACITOR

Norio Yoshiga, and Masahiro Kawamura, both of Nagahama, Japan, assignors to Mitsubishi Plastics Industries Limited, Tokyo, Japan

Filed Feb. 13, 1987, Ser. No. 15,106

Claims priority, application Japan, Feb. 26, 1986, 61-40685; Jun. 4, 1986, 61-129980

Int. Cl.⁴ B32B 15/08, 27/36, 27/30



e elastic modu- 20° C. and a

SEMI-FOAMED POLYETHYLENE MOLDING

Raymond J. Phillips, Oakdale, Conn., and Douglas O'Brien, West Chicago, Ill., assignors to The United States of America represented by the Secretary of the Navy

Filed Dec. 12, 1986, Ser. No. 3,352

Int. Cl.⁴ C08J 9/00; B32B 3/26

substantially polymer; a

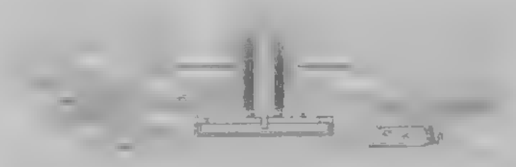
4,759,974

GLASS FIBERIZATION

Marie-Pierre Barthe, Gouvieux; Jean A. Battigelli, and Francois Bouquet, both of Rantigny, all of France, assignors to Isover Saint-Gobain, Paris, France

Division of Ser. No. 851,296, Apr. 7, 1986, abandoned, which is a continuation-in-part of Ser. No. 409,336, Aug. 18, 1982, Pat. No. 4,451,276, and Ser. No. 461,834, Jan. 28, 1983, abandoned. This application Jun. 20, 1986, Ser. No. 876,977

Claims priority, application European Pat. Off., Apr. 6, 1983, 83400698.3; Apr. 6, 1983, 83400699.1; France, Jul. 12, 1983, 83



1. A glass fi nket produced comprising heating to molten attenuable following composition

SiO_2
Al_2O_3

lucing the molten glass into a spinner for delivery to e interior surface of the spinner peripheral wall, said spinner peripheral wall having a multiplic therein

diameter, the peripheral velocity of the spinn nner pressure falling within the following r

signors to Asten Group, I en, S.C.

Filed Nov. 6, 1986, Ser. No. 927,743

layer machine direction yarns and form a en layer with said top machine direction

tend under at least two bottom layer machine direction yarns and over at least one top and bottom layer machine

aisha, Tokyo, Japan

Filed Aug. 20, 1986, Ser

application Japan

term of this pat

005, has been dis

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POXY RESIN COMPOSITION

Takata, Ichihara, Japan, assignor to
Industries, Ltd., Tokyo, Japan
Filed Sep. 29, 1986, Ser. No. 912,549
riority, application Japan, Sep. 30, 1985
Int. Cl.⁴ C08G 59/02, 59/32

presented by the follow

DING MEDIUM

ri, both of Kanagawa, J
assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Nov. 6, 1986, Ser. No. 927,464
Claims priority, application Japan, Nov. 6, 1985, 60-247219
Int. Cl.⁴ G11B 5/708

aining
said
ing

ING MEDIUM
ER BINDERS I
RDING LAYER

moto; Kumiharu Fujiki, and Satoshi Sekiya, al
Japan, assignors to Victor Company of Japan, Lt
ma, Japan
Filed Feb. 12, 1987, Se
Claims priority, application Japa
Int. Cl.⁴ G11B

ecording medium which comp
d a magnetic recording layer

G BACKUP TAPE ASSEMBLY
lverson, Pa., assignor to Daslyn Manufa

the rope to the ribbon

TRANSFER GRAPHIC ARTICLE WITH ROUNDED AND SEALED EDGES AND METHOD FOR MAKING SAME

Jeffrey R. Jenssen, Woodbury; Kenneth G. Olson, and John W. Frank, both of Cottage Grove, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Dec. 12, 1986, Ser. No. 941,023
Int. Cl.⁴ C09J 7/02, B60R 13/00, B41M 3/12, B32B
U.S. Cl. 428—343

1. A dry transfer article for applicati
de a design thereon, said article con

underlying sai
erewith, wherein said
dhesion to said graphi

and

URE SENSITI

W. Knutson, Yorba Linda; Paul J. Steinwand, Placentia,
h J. Wilczynski, Yorba Linda, and Lonnie T. Spada,
a, all of Calif., assignors to Union Oil Company of
rnia, Los Angeles, Calif.
d May 30, 1986
l.⁴ C09J 7/02; B

adhesive artick
reof with a nor

al, wherein said polymer is selec

olefinically unsaturated carboxylic acid ester poly

combinations thereo

4,759,984

ELABLE SEALS USING POLYBUTYLE

arles C. Hwo, Sugarland, Tex., assignor to Sh
pany, Houston, Tex.
Filed Jun. 27, 1986, Ser. No
Int. Cl.⁴ C09J 7/02, B32B 27/08

l for producing

Herbe Wilmington,
Layton, ne Richard K
Del., assignors
Wilmington, D

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to Nitto Electric In

9 Claims

4,759,988

AIN FOR CONSTRUCTION MATERIAL

umamoto, Sendai; Yoshihiko Ohama, 2-14-10-4 Kohoku-ku, Yokohama-shi, and Seishi Suzuki, Sen of Japan, assignors to Tohoku Electric Power Com

ELECTRODE SUBSTRATE FOR FULL C

Kenori Abe, and Masayuki Funabashi, both of I assignors to Kureha Kagaku Kogyo Kabushiki Kai

Filed Nov. 17, 1986, Ser. No. 931,085

Claims priority, application Japan, Nov. 25, 1985, 60-264542

tion of the term of this patent subsequent 2005 has been disclaimed.

4,759,990

OPTICAL ELEMENT INCLUDING

operations, comprising

cellulose-based compound,

methy

layer, and

nother layer formed of a fluorocarbon compou

and distributed over the exposed face in said layer.

id intermediate and other layer coope-

LUBRICATI

ohiyuki Kanno, Tokyo; Hitoshi Watanabe, Hach Yasutaro Yasuda, Nagoya; Shiro Kojima, Tokai; Hiroy Kato, Nagoya; Takashi Tsuda, and Kishiro Azuma, both Tokai, all of Japan, assignors to Toagosei Chemical Indust Co., Ltd. and Olympus Optical Co., Ltd., both of Tokyo

Filed Mar. 1, 1985, Ser. No. 707,046

priority, application Japan, Mar. 6, 198

taining macromo-

rom 2 to 90 parts by

taining macron

omer, the lub

4,759,992

PROCESS FOR COATING MOISTURE-CURABLE LOW OLECULAR WEIGHT POLYMERS AND COMPOSIT THEREOF

Richard F. Tomko, Homewood, Ill.; William D. Sigworth, Naugatuck, Conn., and Thomas S. Coolbaugh, Arlington, Mass assignors to Uniroyal Chemical Company, Inc., Middlebu

Filed Sep. 10, 1986, Ser. No. 905,819

Int. Cl.⁴ B32B 9/04, B05D 3/02

58—447

thod for protect

mprises the steps

ituted thereon one or a

LASMA CHEMICAL

COATED ARTICLES ANI

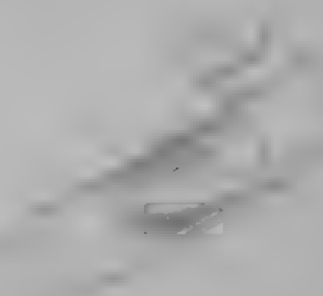
CHEMICAL VAPOR DEPOSIT

APPLYING THE CO

nachandra Pai, Birmingham; Ben at Rock, and Yasuo Takagi aic Synthetic Materials

led Apr. 25, 1985, Se

Int. Cl.⁴ B0



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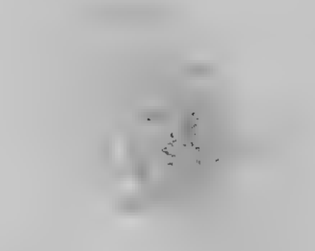
Paris, France 75116
7, 1984, abandoned

David M. Schuster, La Jolla
assignors to Dural Aluminum Composites

continuation-in-part of PCT US84/02055, filed Dec. 12, 1984
published as WO86/02246 on Apr. 24, 1986 which is a
Ser. No. 501,128, Jun. 6, 1983. This
No. 856,336



face of

the refractory ceramic

core
said
said
posi-
re to

MAGNETIC RECORDING MEDIUM

Hikaru Ogawa; Yukio Fukutomi, and Masayuki Okutani, all
Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki
sha, Tokyo, Japan
Filed Dec. 1, 1986, Ser. No. 936,450
Claims priority, application Japan, Mar. 20, 1986, 61-62

4,759,997

AIR SUPPLY APPARATUS FOR FUEL

deo Ohyauchi; Yoshiaki Amano, and Asao Hanzawa, all
Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 23, 1987, Ser. No. 6,426
riority, application Japan, Jan. 23, 1986
Int. Cl.⁴ H01M 8/04

in a fuel cell system comprising
air to the fuel cell system, an

gas from s
driving said
exhaust gas

fuel and air to s
able amount of

4,759,998

ALKALI METAL SWITCH DEVICE

Graham Robinson, Chester; Peter Bindin, and John M
both of Runcorn, all of United Kingdom, assignors t
Silent Power Limited, Runcorn, United Kingdom
Filed Feb. 3, 1987, Ser. No. 10,444
Claims priority, application United Kingdom, Feb
03217

Cl. 429—61

Runcorn, and Christ
ankey, both of United Kingdom, assignors
ower Limited, Runcorn, United Kingdom
sion of Ser. No. 748,933, Jun. 26, 1985
This application Ja

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t at said first side edge (16) of the grid p

ppropriately cut off and bent towards

4,769,001

DE FOR LEAD ACCUMULATORS

-Deiringsen, and Wieland Rusch, Soest, both of Fed. Rep. of Germany, assignors to Hagen Batterie AG, Soest, Fed. Rep. of Germany

Filed Mar. 17, 1987, Ser. No. 26,610

is priority, application Fed. Rep

RRENT CONDUCTOR FOR A
ELECTRODE IN AN ALKALINE
SYSTEM

erhard Schneider, Ellwangen, and Helmut Laig-Horstebrock, Frankfurt, both of Fed. Rep. of Germany, assignors to Varta Batterie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Dec. 1, 1986, Ser. No. 936,167

Claims priority, application Fed. Rep. of Ger

electrode

te in a separator

negative electrode and the metal oxide positive elec

and

current conductor with a surface for receiving the m

tive electrode, cob

balt-containing

of the current co

ve electrode, to reduce the con

the metal oxide positive electrode

ELECTROPHOTOGRAPHIC P
MEMBER CONTAINING DISAZ

Masakazu Matsumoto, Yokohama; Takao Takiguchi, Tok Masataka Yamashita, Kawasaki; Shoji Umehara, Fuchu; Shozo Ishikawa, and Hajime Miyazaki, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 21, 1986, Ser. No. 865,452

Claims priority, application Japan, May 24, 1985, 60-110100-

8, 1985, 60-113043

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1986, Ser. No. 9
f this patent subs
2004, has been disclaim
nt. Cl.⁴ G03G 5/06 5

eorg Pawlowski, Wiesbaden, Fed. Rep. o
to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed May 29, 1985, Ser. No. 739,024
rity, application Fed. Rep. of

rent from Ryane

aminophenyl)qu

4,760,007

PING LATENT ELECTROSTATI
IMAGE USING DRY MAGNETIC D

shio Takasu, Toride; Tetsuo Hasegawa, T
Noda, and Yoshihiro Nishikawa, Kawas
assignors to Canon Kabushiki Kaisha, Tokyo, Japan
ontinuation of Ser. No. 484,295, Apr. 12, 1983, abandoned
which is a continuation of Ser. No. 260,586, May 6, 1981
abandoned, which is a continuation of Ser. N
1979, abandoned. This application Sep. 9, 198
Claims priority, application Japan, Fe
Mar. 30, 1978, 53-37076
Int. Cl.⁴ G03G

g a stationary ma

RS AND METHODS FOR MAN
THE SAME USING MICROWAVE RADIATION IN
MAGNETIC FIELD

unpei Yamazaki, Tokyo, and Takeshi Fukada, Ebina, both of
Japan, assignors to Semiconductor Energy Laborator
Ltd., Kanagawa, Japan
Filed Jan. 23, 1987, Ser. No. 6,379
laims priority, application Japan, Jan. 24, 1986,
24, 1986, 61-14574

ating drum in a reactio
ng drum about its axis,
a reaction chamb
n chamber by a

g reactive gas from said resonat
ding it therein, the other region

PROCESS FOR PREPARATION OF LIQ
ELECTROSTATIC IMAGI

James R. Larson, Greenville, Del., assignor t
Nemours and Company, Wilmington, Del.
Filed Dec. 4, 1985, Ser. No. 804,38
Int. Cl.⁴ G03G 9/12

cess for the preparation
tatic liquid developers compris
A. dispersing at an elevat
moplastic resin and,
utanol value of less than 30, by means of mov
late media whereby the moving particulate me

PRINTING SYSTEM COMPRIS

Izumi Takagi, Kuwana, Japan, assign
shiki Kaisha, Aichi, Japan
Filed Mar. 4, 1987, Se
aims priority, application Japan

ujio Kakimi, Minami-ashigara, Japan,
Film Co., Ltd., Kanagawa, Japan
Filed Mar. 11, 1987, Ser. N
aims priority, application Japan, N
Int. Cl.⁴ G03

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4,760,012
[illegible] RECORDING DISK

[illegible] of Japan, assignors to Matsushita Electric Industrial Co., [illegible]

[illegible] ontinuation of Ser. No. 880,318, Jun. 30, 1986, abandoned.
This application Aug. 28, 1987, Ser. No. 91,349
Claims priority, application Japan, Jul. 4, 1985, 60-147539

[illegible]

high humidity atmosph [illegible]

[illegible] SITATORS
[illegible] nd Carl E. Larson, San Jose,
[illegible] ternational Business Machines

[illegible]

[illegible] THEREFOR
[illegible] Orange County, Calif., assignor to
[illegible] oration, West Lafayette, Ind.
[illegible] ed Aug. 1, 1986, Ser. No. 891,88[illegible]
Int. Cl.⁴ G03C 5/24

[illegible] l photopoly-

4,760,015
[illegible] ATION OF A PHOTOGRAPHICALLY
PRODUCED SILVER IMAGE USING AN
AMINO-1,2,4-TRIAZOLE
[illegible] Werner Berthold, Leverkusen; Günther Mahlberg, Bergisch Gladbach; Paul Marx, Leverkusen, and Hans Ohlschläger, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Agfa Gevaert Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany
Filed Apr. 13, 1987, Ser. No. 37,931
Claims priority, application Fed. Rep. of Germ[illegible] 1986, 3613622

[illegible] eatment bath contains an amino-1,2,4-triazole

[illegible] 01[illegible]
[illegible] OR PHOTOGRAPHIC
LIGHT-SENSITIVE MATERIAL
[illegible] Hirabayashi, and Kaoru Matsunaga, both of Hino, [illegible] n, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Filed Oct. 14, 1986, Ser. No. 918,7[illegible]
Claims priority, application Japan, Oct. 17, 1985, [illegible]
Int. Cl.⁴ B03C 1/46
8 Claims

[illegible] le color photographic light-sensitive material

[illegible] wherein A is a coupler component capable of [illegible] oxidized product of a color developing agent

4,760,017
ARABINONUCLEIC ACID PROBES FOR [illegible]
ASSAYS
Randy M. McCormick, Wilmington, Del., assig[illegible] Pont de Nemours and Company
Filed Dec. 23, 1985, [illegible]
Int. Cl.⁴ C12Q 1/68; C07H 15/1[illegible]

[illegible] tection of a preselected nucleic acid [illegible] comprising single stranded arabinonucleic acid con[illegible] sentially of arabinonucleotides [illegible] le linkages with a base linked [illegible]

[illegible] ting said immobilized single-stranded nucl[illegible] single-stranded arabinonucleic acid cons[illegible]

[illegible] e arabinonucleo[illegible] nd formed on th[illegible] ce of arabinonu[illegible] upport by conta[illegible] ody-label conjugate [illegible]

4,760,018
[illegible] OD FOR THE DETECT[illegible]
BETA-LACTAMASE IN BODY FLU[illegible]
Stanley E. Charm, Newton, Mass., assignor to [illegible] Inc., Malden, Mass.
Filed Jun. 17, 1985, Ser. N[illegible]
Int. Cl.⁴ G01N 33/56[illegible]

[illegible] from the grou[illegible]

[illegible] aid supernatant with cells of a [illegible] roorganism and a signal labeled b[illegible] inding to the microorganism cell[illegible] ditions to permit any beta-lactamase p[illegible] atically degrade the labeled beta-lactam and [illegible] aining intact beta-lactam [illegible] ganisms,
[illegible] ing the microorganism [illegible]

[illegible] nt of bound labeled beta [illegible] rganism cells, and

[illegible]

Alan M. Sugar, Newton, Mass., and David A. Stevens, Saratoga, Calif., [illegible] to Trustees of Boston University, Boston, [illegible]
Filed Apr. 3, 198[illegible]
Int. Cl.⁴ C12Q [illegible]

[illegible] specifically represent [illegible]

[illegible] stitute of Retina Foundat[illegible]
Filed May 3, 198[illegible]

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apan, assignors to Director-Ge
Science & Technology, Tokyo

e like cells in a
enhance the p

760,022

D PLASMIDS

n A. Gerdes, Virum
S Alfred Benzon, Copenhagen

00085, § 371 Date May 15, 1984, § 102(e
15, 1984, PCT Pub. No. WO84 01172, P
Mar. 29, 1984
PCT Filed Sep. 15, 1983, Ser. No. 610,98

HUMAN LI
NG GENE, CO
ASMID, TRANSI
PROCESS FOR PRODUCTION THEREOF

Kenichi Miyoshi; Shinichiro Sumi; Akira Hasegawa, and Masanori Suzuki, all of Hiroshima, Japan, assignors to Wakunaga Seiyaku Kabushiki Kaisha, Osaka, Japan
Filed Jul. 3, 1984, Ser. No. 627,533
Claims priority, application Japan, Jul. 8, 1983, 58
Int. Cl.⁴ C12

Oreste J. Lantero, Jr., Goshen, Ind.,
khart, Ind.

A method for preparing an immob
containing an immobilized enzy

up content of at least 10 weight pe
amino groups
ehyde and an aq
medium to form

AND ME
SAME

d A. Estell, Mountain View, and Jame
Mateo, both of Calif., assignors to G
ancisco, Calif.
Filed May 29, 1984, Ser
Int. Cl.⁴ C12N
Cl. 435—222

Edwin S. Lennox, Great Wilbraham, and Steven H. Sacks, Cambridge, both of United Kingdom, assignors to Celltech Limited, Berkshire, England
Continuation of Ser. No. 438,896, filed as PCT GB/00076 on Mar. 8, 1982, published as WO82/03089 on Sep. 16, 1982, abandoned. This application Nov. 17, 1986, Ser. No. 931,880
Claims priority, application United Kingdom, Mar. 6, 1981
8107179
A61K 39/395; G01N 33/577; C12N 15
—387

inoculated with B-type

4,760,027

MICROBIOLOGICAL DESULFURIZATION OF

Kerry L. Sublette, Tulsa, Okla., assignor to Combustio
neering, Inc., Windsor, Conn.
Filed Apr. 9, 1986, Ser. No. 849,646
Int. Cl.⁴ A61L 9/01
266 12

d for treating a gas stream containing h
ove said hydrogen sulfide comprising t

T. *denitrificans* in the absence of H_2S in a
edium containing a quantity of thiosulf
lation of *T.denitrificans*, t
f thiosulfate and forming a
ce medium.
ay remain in said
en through said s

ow to the quant

uantity of O_2 is maintai

A. deBruyne, Princeton, N.J.; George S. Field, Philadelphia, and Gregory J. MacMichael, Morrisville, of Pa., assignors to Techne Incorporated, Princeton,
25, 1986, Ser. No. 889,4
Cl.⁴ C12M

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[illegible]

liam Billard, Scotch Plains, a
J., assignors to Schering Corpo

[illegible]

n, Menlo Park, and Martin Becker, Palo Alt
, assignors to Syntex (U.S.A.) Inc., Palo Alto,

10, 1984, Ser. No. 649
Cl.⁴ G01N 33/540

[illegible]

sample and an opaque

[illegible]

Institute of Technology, Pasa
Filed Mar. 3, 198

[illegible]

er layer of said semic

4,760,032
OXIDES ON SEMI

[illegible]

each of which has a polycrystalli
erlying a gate oxide layer, the
testing simultaneously the ga
in a single die area compri

[illegible]

group of transistors to

[illegible]

oxide regions are to be tested

[illegible]

4,760,033
METHOD FOR THE MANUFACTURE OF
COMPLEMENTARY MOS FIELD EFFECT
TRANSISTORS IN VLSI TECHNOLOGY
gang Mueller, Putzbrunn, Fed. Rep. of Germany, assig
Siemens Aktiengesellschaft, Berlin and Munich, Fed. R

Filed Mar. 4, 1987, Ser. No. 21,795
aims priority, applicatio
3611797
Int. Cl.

[illegible]

REGION
Barden, Al

[illegible]

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4, 60,??

[illegible] TECHNOLO[illegible]

[illegible] and Alfred Schuetz [illegible]
[illegible] ermany, assignors to Siemens Aktiengesell[illegible]
[illegible] Munich, Fed. Rep. of Germany
[illegible] No. 749,589, Jun. 27, 1985, abandoned. This
application Dec. 12, 1986, Ser. No. 942,0[illegible]
priority, application Fed. Rep. of Germ[illegible]

[illegible] SS FOR GROW[illegible] ON-INSULATO[illegible]

[illegible] abushiki Kaisha, Tokyo, Japan
[illegible] vision of Ser. No. 770,776, Aug. 29, 1985, abandoned. This
application Oct. 3, 1986, Ser. No. 914,575
[illegible] ority, application Japan, [illegible]
Int. Cl.⁴ H01L [illegible]

[illegible] nc., Cinci[illegible]

[illegible] Didier Werke A[illegible]

[illegible] Hidemitsu Ogata; Takanori [illegible]
[illegible] of Kitakyushu, Japan, assignor[illegible]
[illegible] Industries Co., Ltd., Tokyo, Japa[illegible]

[illegible] e elastic gel sl[illegible]

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Alexander, both of Angleton, and Carl
E of Tex., assignors to The Dow Chemi-
cpany, Midland, Mich.
uation of Ser. No. 848,516, Apr. 7, 1986, abandoned.
is a continuation of Ser. No. 499,626, May 31, 1983
is application Jun. 26, 1987, Ser. No. 68,775
Int. Cl.⁴ H01M 4/88

substrate a coating solution

h is effective as a precursor for nickel oxide by thermal oxidation

f a metal compound for a modifier metal of, said coating solu- chant capable of etching the ating solution is applied.

es from the so-coated substrate dues of the precursor compounds and e said surface to be concentrated and

, in the presence of oxygen, air or an a temperature sufficient to oxidize all unds and platinum metal group com- odifier metal compounds sup- the coating solution.

ng performed a plurality of

PROCESS FOR PREPARING AN AL METAL-PROMOTED SILVER CATAL

William D. Armstrong, Stamford, Conn., assigno
Design Company, Inc., I
Filed Mar. 2
Int. Cl.⁴ B01J 2

silver salt, said support comprising alumina or combinations thereof ha about 0.1 to 1.0 m²/gm and characte selectively adsorb an alkali metal in an amount grea than is calculated from the amount in a solution there which has been adsorbed,

b) separating the impregnated support of (solution and activating in the presence of n

he active catalyst of (b) with a solu of at least one alkali metal selected

l is selectively adsorbed.

4,760,043
Patent Not Issued For This Number

4,760,044

CATALYST FOR MINIMIZING THE H₂S EMISSION FROM AUTOMOTIVE EXHAUST AND METHOD OF ITS MANUFACTURE

George C. Joy, III, Arlington Heights; George R. Lester, Park Ridge, and Richard E. Marinangeli, Arlington Heights, all of Ill., assignors to Allied-Signal Inc., Morristown, N.J.
Filed Jun. 15, 1987, Ser. No. 62,024
Int. Cl.⁴ B01J 21/04; 23/10; 23/40
U.S. Cl. 502—303 31 Claims

1. A catalytic composite for treating a hot exhaust stream from an internal combustion engine which comprises a mixture of (1) a primary refractory inorganic oxide support having dispersed thereon at least one of a first active component selected from the group consisting of rare earth oxides and (2) a secondary support selected from the group consisting of zirconia, titania, ceria, silica, magnesia, natural and synthetic zeolites having dispersed thereon at least one of a second active component which is an oxide of a metal, the metal selected from the group consisting of metals which form a stable sulfide under fuel rich conditions, said mixtu least one main catalytic metal selected from the g ing of platinum, palladium, rhodium, ruthenium

CATALYST FOR HYDROTREATMENT OF HEAV AND METHOD FOR ITS PREPARATION

Yasuyuki Oishi, Yokohama; Ken Kawakatsu, Kawasaki Akira Inoue, Yokohama, all of Japan, assignors to Nippon Oil Ltd., Japan
Filed Jun. 3, 1986, Ser. No. 870,224
Claims priority, application Japan, Jun. 5, 1985, 60-1 Feb. 25, 1986, 60-38351
Int. Cl.⁴ B01J 23/22; 23/28; 23/30; 23/74
-32

for hydrotreatment of heavy e metal component for hydrog

catalyst, and C₁ and C₂ repr metal component at said point

4,760,046

OR THE PRODUCTIO CARBONS USING PHOSHORIC ACID

Alex Börger; Karl-Friedrich Thom, both of Cologne, and Peter Schmidt, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany
Continuation of Ser. No. 816,800, Jan. 7, 1986, abandoned. This application Sep. 10, 1987, Ser. No. 95,306
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1985, 3501073
Int. Cl.⁴ C01B 31/12; B0
U.S. Cl. 502—425 4 Claims

1. A process for the production of activated carbon from a

, the carbon-containing combustible at tempera- rom 250° to 550° C. for no more than 30 minutes

3) washing the thus produced activated carbon with phosphoric acid

enst-Werke AG, Wiesbaden
Filed Apr. 9, 198
Claims priority, application I

Photo Film Co., Ltd., Kanagawa, Japan
Filed Feb. 28, 1986, Ser. No. 834,8
Claims priority, applic
Apr. 22, 1985, 60-85904

Karl-Heinz Etzbach, Fr
heim, both of Fed. Rep. of Germany, assignors
tiengesellschaft, Rheinland-Pfalz, Fed. Rep. of
Filed Oct. 29, 1987, Ser. No. 113,99
Claims priorit
1986, 3638756

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Newlander, West Chest
ler, all of Pa., assignors to SmithKline Beckman Corpo
, Philadelphia, Pa.
ntinuation-in-part of Ser. No. 819,336, Jan. 16, 198
ndoned. This application Apr. 28, 1987, S
Int. Cl.⁴ A61K 37/34; C07K 7
[ ] 514—11

or a D- or L-
Arg, MeArg

4,760,053
ATION THERAPY FOR SELECTED
STEROID DEPENDENT CANCERS
le, 2735 boul. Liegeois, Ste-Foy, Quebec

Cl. 514—15 13 Claims

A method of tr

nation of Ser. No. 670,337, Nov. 9, 1984, abandoned. Th
application Sep. 26, 1985, Ser. No. 780,391
rity, application Japan, Nov. 14, 1
l.⁴ A61K 31/70; C07H 17/04; C07

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ted C_1–C_6 alk

4,760,055
GROWTH-STIMULATING ANIMAL FEED, A PR
FOR PREPARING IT, AND AN ADDITIVE TO BE
IN IT

Matti E. Harju, Nummela; Jouko J. Setälä, Espoo; Matti K. Heikonen, Espoo, and Eero P. Linko, Espoo, all of Finland assignors to Valio Meijerien Keskusosuusliike, Helsinki, Finland
Filed Aug. 5, 1986, Ser. No. 893,24
nt. Cl.⁴ G03C 78

ner Buerstinghaus, Heidelberg; Franz Mer
Rudolf Kropp, Limburgerhof, Karl Kiehs, La
Heinrich Adolphi, Limburgerhof, all of Fed.
ssignors to BASF Aktiengesellschaft
Filed Apr. 23, 1986, Ser

Jose Alexander, Lawrence, Kans., ass
Inc., Rahway, N.J.
Continuation
nt. Cl.⁴ C07

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da, Hiratsuka; Takehiro Ogasa, M
achida; Tadashi Hirata, Yokohama
d Ryo Okachi, Chiba, all of Japan, a
ayo Co., Ltd., Tokyo, Japan
, 15, 1985, Ser. No. 798,320
lication Japan, Nov. 15, 1984
[illegible] C07D [illegible]

D ESTER DERIVATI
rds, Bramhall, and Bria
gland, assignors to Imper
, England
iled Apr. 24, 1985, Ser. N
ity, application United K

ion atoms, or
CR^{14} is an

r more haloge

PHARMACEUTICAL COMPOSITIONS OF
N-HETEROCYCLIC BENZENESULFONAMIDES AND
THEIR USE

Pierre Roger, Montigny-les-Bretonneux; Patrick Choa
and Jean-Paul Fournier, Versailles, all of France, assignors t
DROPIC, Societe Civile de gestion de droits de Propriete
Industrielle, Paris, France
Filed Oct. 18, 1984, Ser. No. 662 178
Claims priority, application
Int. Cl.^{4} A61

edrich Berschauer, Wuppertal; Martin S
and Anno de Jong, Wuppertal, all of Fed
assignors to Bayer Aktiengesellschaft
of Germany
s prio
985, 3540377

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ents represent
ers which is

halogenoalkylthio, methylene
which are optionally haloge

4,760,064

OMPOUNDS, COMPOSITIONS INING SAME AND PROCESSES FOR PREPARING SAME

Michiaki Tominaga; Takafumi Fujioka; Kazuyoshi Nagami, and Kazuyuki Nakagawa, all of Tokushima, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Dec. 13, 1985, Ser. No. 808,420

Claims priority, application Japan, Dec. 18, 1984 59-268189; Dec. 3, 1985, 60-272086

4,760,065

RIFLUOROMETHYL SUBSTITUTED TETRACYCLIC QUINAZOLIN-ONES HAVING TRANQUILIZING ACTIVITY

oetz E. Hardtmann, 12 Lynnfield Dr., Morr 07960; William J. Houlihan, 15 Raynold Rd., M 07046, and Rudolf K. A. Giger, Baselstrasse 2 Riehen, Switzerland

Filed Feb. 13, 1986, Ser. No. 829,594

Int. Cl.⁴ A61K 31/505; C07D 471/14

57 5 Claims

und which is trans(−)-10aR-7,8,9,10,10a,11 uoromethyl-13H-pyrido[1',2':3,

mposition comprising an inert phar- carrier and a tranquilizing effective

---

METHOD FOR TREATING HUMAN TUMOR CELL METASTASIS

Wolf-Dieter Busse, Wuppertal, Fed. Rep. of Germany; Kenneth V. Honn, Grosse Point Woods, Mich.; Eike Moller, and Friedel Seuter, both of Wuppertal, Fed. Rep. of Germany, assignors to Wayne State University, Detroit, Mich.

Continuation of Ser. No. 420,642, Sep. 21, 1982, abandoned, which is a continuation-in-part of Ser. No. 400,878, Jul. 22, 1982, abandoned, which is a continuation of Ser. No. 251,864, Apr. 7, 1981, abandoned. This application Nov. 4, 1986, Ser. No. 928,614

Int. Cl.⁴ A61K

U.S. Cl. 514—264

1. A method for reducing interaction betwe lets and malignant tumors present in the blood

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4,760,067

EPOXIDE ENZYME INHIBITO

mond A. Firestone, Fanwood, N.J., assignor to Me Co., Inc., Rahway, N.J.

Continuation of Ser. No. 770,469, Aug. 29, 1985, Pat. N 570,470, which is a continuation-in-part of Ser. No. 147,65 980, Pat. No. 4,388,475, which is a continuation-in-part 66,603, Aug. 15, 1979, abandoned. This application Mar. 9, 1987, Ser. No. 24,09

Int. Cl.⁴ A61K 31/505; C07D

5—274

YL ALKENOIC ACID DER THE ACTION OF THROMB SYNTHETASE

, Osaka, and Kohei Nishikawa, Kyoto, both ssignors to Takeda Chemical Industries, Ltd., Os apan

Continuation of Ser. No. 502,603, Jun. 9, 1983, P 4,727,078. This application Jun. 6, 1986, Ser. No

Claims priority, application Japan, Jun. 14, 1982, Dec. 1, 1982, 57-211753

The portion of the term of this patent subsequent

Baltimore, both of Md., assigno

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ANALGESIC COMPOSITIONS AND METHOD

rancoise Delevallee, Fontenay-sous-Bois, and Roger Deraedt Pavillons-sous-Bois, both of France, assignors to Roussel Uclaf, Paris, France

Continuation-in-part of Ser. No. 828,399, Feb. 11, 198 abandoned. This application Nov. 12, 1986, Ser. No. 930,3 Claims priority, application France, Feb. 14, 1985 85 02095

Int. Cl.⁴ A61K 31/44

Cl. 514—282 6 Claims

als an anal-

ANDROST-1-EN-3 HICH ARE ACTIVE AS TESTOSTERONE 5α-REDUCTASE INHIBITORS

Rasmusson, Watchung, and Glenn F. Reynolds, Westboth of N.J., assignors to Merck & Co., Inc., Rahway.

of Ser. No. 584,062, Feb. 27, 1984, abandoned 1985, Ser. No. 800,623 C07J 73/00

rapeutically effective amount

4,760,072

SOLID NEDOCROMIL SODIUM, USEFUL FOR REMOVAL OF OBSTRUCTED AIR PATHWAYS

Kenneth Brown; Andrew R. Clark, both of Loughborough, and Richard Saltiss, Holmes Chapel, all of England, assignors to Fisons, plc, Ipswich, England

Filed Apr. 8, 1985, Ser. No. 720,58

Claims priority, application United Kingdom, 8400705, Sep. 19, 1984, 8423634

Cl.⁴ A61K 31/3

ARYL-SUBSTITUTED NAPHTHYRIDOPYRAZINE DERIVATIVE ANTI-ALLERGIC AGEN

David J. Blythin, North Caldwell, and Ho-Jane Shue Brook, both of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Continuation-in applica

Int. Cl.⁴ A61K 3

is independently selected f

wherein

NOVEL-N-(BICYCLIC HETEROCYCLYL)-4-PIPERIDINAMINES

is E. Janssens, Bonheiden; Jozeph L. G. Torremans, Beerse; ozef F. Hens, Nijlen, and Theophilus T. J. M. Van Offenwert, Vosselaar, all of Belgium, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

Division of Ser. No. 487,774, Apr. 22, 1983, Pat. No. 4,556,6 which is a continuation-in-part abandoned. This application

re P. Pioch, Indianapolis, Ind., assignor mpany, Indianapolis, Ind.

tinuation of Ser. No. 734,235, May 16, hich is a continuation of Ser. No. 486,621 andoned, which is a continuation-in-part of 6, 1981, Pat. No. 4,382,090, which is a c

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AND DERIVES

uzef Drabek, Oberwill, Switzerland, assignor to Ciba-Geig Corporation, Ardsley, N.Y.

Continuation of Ser. No. 551,766, Nov. 14, 1983, This application Jan. 21, 1987, Ser. No. 8,137

Claims priority, application Switzerland, N 903/82; Oct. 12, 1983, 5568/83

nt. Cl.⁴ A01N 43/90; C07D

f controlling a

DERIVATIVES AND PHARM USE THEREOF

eter Stahl, Bernried; Hans Seidel, Tutzing; He Eltz, Weilheim; Otto-Henning Wilhelms, Weinheim-Ritten weier, and Androniki Roesch, Mannheim 1, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

T No. PCT/EP85/00489, § 371 Date May 15, 1986, § 102(e) Date May 15, 1986, PCT Pub. No. WO86/01716, PCT Pub. Date Mar. 27, 1986

PCT Filed Sep. 19, 1985, Ser. N

Claims priority, application Fed. Rep 3433562

Cl.⁴ C07D 495

4,760,078

MODULATOR 1,2-DITHIOL-3-T DERIVATIVE COMPOSITION, USE METHOD AND PROCESS OF PRODUCING THE SAME

taru Yamamoto, Okayama; Akira Matsubara, Yokohama; Kanji Tomiya, Kamakura; Osamu Mizuno, Mobara; Mitsuhiro Sakaguchi, Sakaguchi, and Mikio Kumakura, Mobara, all of Japan, assignors to Mitsui Toatsu Chemicals Inc., Tokyo, Japan

Filed Mar. 5, 1987, Ser. No. 22,349

Claims priority, application Japan, Mar. 5 1987, 62-18295

Int. Cl.⁴ A6

12. A method for prising administeri isorder an effective immunom ng amoun position of claim 9.

16. A process of producing a 1,2-dithiol-3-thione f the formul

rein R , halogen, lo er alkyl gr up, lower alky up or lower alk thione in an org

H DISEASES CA VIRUSES

Joseph A. Baldone, New Orleans, La., assign New Orleans, La.

Continuation of Ser. No. 743,889, Jun. 12, 1985, abandoned, which is a division of Ser. No. 631,645, Jul. 16, 1984, abandoned, which is a continuation-in-part of Ser. No. 456,732, Jan. 10, 83, abandoned. This application Aug. 4, 1987, Ser. No. 81,54

Int. Cl.⁴ A61K 31/14

4,760,080

COMPOSITION FOR THE TEMPORARY STIM OF URINE PRODUCTION

Larry Barron, and Susan C. Barron, both of 7 Hum Winnipeg, MB, Canada (R2Y 2G4)

Filed Aug. 5, 1986, Ser. No. 893,155

laims priority, application Canada, Aug. 21, 198

Int. Cl.⁴ A61K 31/525, 31/34

U.S. Cl. 514—251

1. A method for stimulating urine prod liminished renal function compr e time, to said human being,

Wittental; Karl Mannhardt, Elzach-Oberprechtal; Kleinschroth, Denzlingen; Hartmut Osswald, W; Günter Weinheimer, Denzlingen, and Edgar Frit Peter, all of Fed. Rep. of Germany, assignors to Aktiengesellschaft, Berlin, Fed. Rep. of Germany

ontinuation-in-part of Ser. No. 891,712, Jul. 30, 19 1,901, which is a continuation-in 21, 1985, abandoned. This appl No. 7,68

Claims priority, application Fed. 1984, 3433303, Jan. 29, 1985, 350279

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phthyridine-3-ca
acceptable salt ‹l

4,760,082

CERTAIN

RYL-1,2,3,6-TETRAHYDRO-PYRIDYL-N-LOWE
ALKYLENE-PYRIDINES HAVING NEUROLEPTIC
PROPERTIES

anning Böttcher, Darmstadt; Andreas Fuchs, Hanover, and Christoph Seyfried, Seeheim-Jugenheim, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit chrankter Haftung, Darmstadt, Fed. Rep. of Germany

ivision of Ser. No. 789,223, Oct. 18, 1985, Pat. No. 4,66

This application Feb. 13, 1987, Ser. No. 15

Claims priority, application Fed. Rep. of Germa

Ic

S. Cl. 514—332 18 Claims

R² independently is phenyl

4,760,083

SUBSTITUTED INDOLINES

yn J. Myers, and Victor J. Nickolson, both of Wilmi Del., assignors to E. I. Dupont de Nemours & Comp Wilmington, Del.

t of Ser. No. 850,015, Apr. 10, 1986

. This application Jan. 5, 1987, Ser. No. 944,953

Int. Cl.⁴ C07D 209/34; A61K 31/40

R⁴ independently are t
independently are 6-t

from
N-oxi

4,760,084

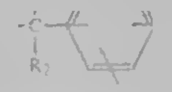
DRY PESTICIDAL COMPOSITIONS

Toshiro Ohtsubo; Shigeru Maruyama, both of Toyonaka; Takeshi Tamura, Yokohama; Nobuyuki Hirano, Toyonaka, and Masami Sakai, Kakogawa, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jul. 21, 1986, Ser. No. 887,785

priority, application Japan, Jul. 29, 1985, 60-1679

Int. Cl.⁴ A01N 37/34; 53/00



represent a hydrogen atom or a
0 or 1 and a pesticidally accep

D-CARAZOLOL AS
AGENT

olfgang Bartsch, Viernheim, Fed. Rep. of Germany, assign to Boehringer Mannheim GmbH, Mannheim, Fed. Rep Germany

ontinuation of Ser. No. 568,437, Jan. 5, 1984, abandoned. Th application Apr. 6, 1987, Ser. No. 35,231

Claims priority, application Fed. Rep. of Germany, Jan 983, 3300933

S. Cl. 514—411

hod for treating glaucoi
ng to eyes of a patient

YL-3-HYDROXYBENZO[B]THIOPHENE
KBOXAMIDE DERIVATIVES AS DUAL
CLOOXYGENASE AND LIPOXYGENASE
INHIBITORS

Allan N. Tischler; Bruce E. Witzel, both of Westfield L. Durette, New Providence; Kathleen M. Rupprecht, Cr ford, all of N.J.; Timothy F. Gallagher, Harleysville, Pa Debra L. Allison, Scotch Plains, and Marvin M. Goldenbe Westfield, both of N.J., assignors to Merck & C ey, N.J.

Filed Feb. 27, 1

COMPOSITIONS CONTAINING THESE

Oswald K. Zimmer, Duren; Werner P. Vollenber Loschen, both of Stolberg; Werner Winter, Aachen Kiesewetter, Stolberg, and Ulrich G. P. Seipp, Aachen, al Fed. Rep. of Germany, assignors to Gruenenthal (Stolberg, Fed. Rep. of Germany

Filed May 13, 1986, Ser

Claims priority, application Fed. R 985, 3516055

Int. Cl.⁴ A61K

U.S. Cl. 514—546

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HIBITORS

l Kaiser, Haddon Heights, N.J., and Lawrence
infield, N.J., assignors to SmithKline Beckman

FUNGUS

M. Carson, Antioch, Calif., and Peter P. McCa
incinnati, Ohio, assignors to The Dow Chemical Compa
Midland, Mich.
ontinuation of Ser. No. 782,657, Oct. 1, 1985, abandoned. I
application Feb. 18, 1987, Ser. No. 16,026

Herman J. Weinreb, New York, N.Y., assignor to
Rockefeller University, New York, N.Y.
Continuation of Ser. No. 792,610, Oct. 29, 1985, abandon
This application Dec. 3, 1986, Ser. No. 937,436
Int.

treating demyelinating
to retard their progr

Blank, Vineland; Dhiraj S. Mody, Hammonton
sm, Cherry Hill, and Richard J. Kenny, Sommers

4,760,094
SPRAY DRIED ACETAMINOPHEN
k, Vineland; Dhiraj S. Mody, Hammonton; Gary
Hill, and Richard J. Kenny, Sommerset, all
signors to American Home Products Corporation
, New York, N.Y.
Filed Oct. 21, 1986, Ser. No
Int. Cl.⁴ A61K 31/74

4 Claims

eutical dosage form for oral administration as

4,760,095
MOISTURIZERS
ew York, N.Y., and E
s to Hoffmann-

4,760,096
MOISTURIZING SKIN PREPARATIO
Coral Springs, and Timothy W. Quick
la., assignors to Schering Corpor

Sep. 27, 1985, Ser. No. 7
Int. Cl.⁴ A61I

n, Canada

Ontario, Canad
Continuation

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nadday, Tampa; Michael J. Skowronski, and Mich
drigan, both of Clearwater, all of Fla., assignors to
ndustries Corporation, Birmingham, Ala.
Filed Dec. 22, 1986, Ser. No
Int. Cl.⁴ C08G 18/3

taining organometallic compound,
the organometallic compound is add

ETHOXYLATED AMINES AN
FOAMS THER
IcDaniel, Austin, Tex., assignor to A
Oct. 26, 1987, Ser. No. 111,64
Int. Cl.⁴ C08

component selected fr

LYURETHANE-FORMING BINDER COM
CONTAINING CERTAIN CARBOXYLIC A
BENCH LIFE EXTENDERS
bert B. Fechter, and John J. Gardikes, both of Worthi
hio, assignors to Ashland Oil, Inc., Russell, Ky
Filed Aug. 25, 1986, Ser. No. 899,69
Int. Cl.⁴ C08K 3/36, 5/0

position compri

4,760,102
POROUS POLYTETRAFLUOROETHYLENE MATERIAL
Yasuhiro Moriyama; Shoji Suzuki; Atsuo Yoshimura; Kanji Kawakami, all of Fukaya; Jyuzaemon Hoashi, Ibaraki; Syozo Fumoto, Suita, and Kiyoshi Oshita, Sakai, all of Japan, assignors to Nitto Electric Industrial Co., Ltd. and Daikin Kogyo Co., Ltd., both of Osaka, Japan
Continuation of Ser. No. 560,939, Dec. 13, 1983, abandoned
This application Jul. 15, 1986, Ser. No. 884,662
Claims priority, application Japan, Dec. 14, 1982, 57-21956

at least 6,000,000 an
lear endothermic peal
ndothermic peal
and the temperat

aft, Baltimore, and Robert F. Brady, Jr., Gaithers-
of Md., assignors to The United States of America
ented by the Secretary of the Navy, Washington,
Filed Jan. 22, 1986, Ser. No. 821,308
Cl.⁴ C08K 3/08, 3/22, 5/01, C08L 63/

ting formulation comprising by
amidoamine resin of an unsatu
yamine, said resin having an a
to about 620 and a Brookfiel
out 10 to about 25 poise.
f a polyamide/epoxy adduct resin sol
ide from a dimerized fatty acid react
ine and the diglycidyl ether of bispheno
e value and viscosity such that a 75 weig
in n-butyl alcohol has an amine value
0 and a Brookf

ERASABLE BALL-POINT PEN INK
Tamotsu Miyajima; Noriatsu Tanaka, both of Kanagawa, and Nobuto Saito, Gunma, all of Japan, assignors to Pilot Mannen-Hitsu Kabushiki Kaisha, Japan
tinuation-in-part of Ser. No. 547,283, Oct. 31, 1983. This application May 8, 1985, Ser. No. 731,805
laims priority, application Japan, Oct. 29, 1982, 57-18980
Int. Cl.⁴ C09D 11/12

drocarbon and mixtu

of the components selected from the g
f petroleum waxes, vegetable waxe
e active agents, lanolins, vaselines

ECTRODE FOR
mothy J. Fuller, Berkeley Heights,
Hempfield Township, Westmoreland County,
Sanjana, Penn Hills Township, Allegheny County,
assignors to Westinghouse Electric Corp., Pittsb
Filed O
Int. Cl.⁴ C0

L. Brode, both of Bridgewater,
nardsville, all of N.J., assignors t
cago, Ill
Division of Ser. No. 690,405, Jan. 15, 195
which is a continuation of Ser. No. 496,39
abandoned. This application Jan. 8, 19

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4,760,108
[illegible] CONTAINING [illegible] TION AND CO[illegible] TERIAL MAKING [illegible] COATING FORMULATION

[illegible]akoto Asano; Kiyoharu Hasegawa, both of Yokohama, Masatoshi Takagi, Sagamihara, and Takamine Yamaguchi, Nakamachi, all of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

Filed Dec. 20, 1985, Ser. No. 811,472

Claims priority, application Japan, Dec. 25, 1984, 59-271975; [illegible]ec. 25, 1984, 59-271976; Apr. 19, 1985, 60-82662; Apr. 19, [illegible]

[illegible] at least one [illegible]

[illegible] ster-base coatin[illegible]

4,760,109
POLYAMIDE RESIN COMPOSITION

[illegible]azumasa Chiba, Nagoya, Japan, assignor to Stamicarbon [illegible] Geleen, Netherlands

[illegible]T No. PCT/NL85/00046, § 371 Date Jul. 15, 1986, § 102(e) [illegible] 1986, PCT Pub. No. WO86/03212, PCT Pub. [illegible] 1986

PCT Filed Nov. 20, 1985, Ser. No. 890,779

Claims priority, application Japan, Nov. 21, 1984, 59-244388

Int. Cl.⁴ C08L 77/00, 81/04

[illegible], 1987, Ser. No. [illegible]

Int. Cl.⁴ C[illegible]

4,760,111
[illegible] OF LOW-TEMPERAT[illegible] ALLYLETHER-FUNCTIO[illegible] POLYESTER-URETHANES

Ronald R. Ambrose, Allison Park; Delano R. Eslin[illegible] and Jerome A. Seiner, Pittsburgh, all of Pa., assi[illegible] Industries, Inc., Pittsburgh, Pa.

Filed Nov. 10, 1987, Ser. No. [illegible]

Int. Cl.⁴ C08G 18/58

4,760,112
[illegible]ERMOPLASTIC POLYETHERIMIDE ESTER POLYMERS EXHIBITING HIGH FLEXURAL MODULUS

Russell J. McCready, and John A. Tyrell, both of Mt. Vernon, Ind., assignors to General Electric Company, Pittsfield, Mass.

Filed Dec. 1, 1986, Ser. No. 936,530

Int. Cl.⁴ C08G 63/76, 69/44

[illegible]525—33 32 Claims

[illegible] COPOLYMER

[illegible] Chiba; Shunji Kawazoe, and Takahiro [illegible] Japan, assignors to Chisso Corporat[illegible]

[illegible] Dec. 17, 1986, Ser. No. 942,79[illegible]

[illegible] application Japan, Dec. 17, 198[illegible]

Int. Cl.⁴ C08F 2[illegible]

[illegible] continuously pr[illegible] copolymer by th[illegible] catalyst, which [illegible]

[illegible] the pressure is in the range of at[illegible]

[illegible] g into said second pol[illegible]

[illegible] ROCES[illegible]

[illegible] oorheesville; Jam[illegible] d Arthur Katchinn, Delmar, all [illegible] al Electric Com[illegible] continuation of Se[illegible] hich is a division of [illegible] 43,098, which is a continua[illegible] [illegible]. This applica[illegible]

Int. Cl.⁴ C0[illegible]

[illegible] ERIAL BASE[illegible] THERS, POLY[illegible]

[illegible] ael Droescher, D[illegible] d. Rep. of Germany, a[illegible] arl, Fed. Rep. of Germa[illegible]

Filed Mar. 30 [illegible]

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LENE SHRINK FILM

, Iowa, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 26, 1986, Ser. No. 937,035

Int. Cl.⁴ C08L 23/20

16 Claims

consisting essentially of a blend of … low or medium density polyethyl … ners of ethyl- … and acrylic … said film has been cross-linked to the … an irradiation dosage o

4,760,117

ETHOD FOR PREPARING COPOLYCARBONATES FROM CYCLIC POLYCARBONATE OLIGOMERS

omas L. Evans, Clifton Park; Tohru Takekoshi, Scotia, and Patricia P. Anderson, Albany, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 899,374, Aug. 22, 198 abandoned, and Ser. No. 894,154, Aug. 7, 1986, Pat. N 4,699,974, and Ser. No. 877,623, Jun. 23, 1986, Pat. No 95,612, and Ser. No. 875,025, Jun. 16, 1986, abandoned, and Ser. No. 810,613, Dec. 19, 1985, abandoned, and Ser. N 3 446, Jun. 11, 1985, Pat. No. 4,657,989. This application 15, 1986, Ser. No. 907,557

Int. Cl.⁴ C08L 71/04

38 Claims

preparing a copolycarbonate which com- … onate

4,760,118

LYPHENYLENE ETHER CAPPED WITH SALICYLIC ACID ESTER

ain M. White, Schenectady, and Laura A. Socha, Troy, both of N.Y., assignors to General Electric Company, Schenectady

Filed Mar. 23, 1987, Ser. No. 28,857

Int. Cl.⁴ C08G 65/48

r capping a polyphenyle … ting said polyphenylene ether in the melt with at … ester of salicylic acid or a substituted derivative

4,760,119

POLYACETAL COMPOSITIONS WITH IMPROVED HYDROLYTIC STABILITY

harles L. Laotta, Marietta, Ga., and Norman E. West, Vienna, W. Va., assignors to E. I. Du Pont de Nemours and Company Wilmington, Del.

Filed Apr. 30, 1986, Ser. No. 857,904

5 weight percent of at least one copolym … xide and propylene oxide, and

99.4 weight percent of at least one polyacetal homo … mer

… ided … 50 %

ASILY SOLUBLE POLYETHYLENE POWDER FOR THE PREPARATION OF FIBERS OR FILMS HAVING HIGH STRENGTH AND HIGH ELASTIC MODULUS

Akira Sano, Kawasaki; Tetsujirou Kuroishi, Chiba; Yasunosuke Miyazaki, Machida; Shigeki Yokoyama, Yokohama, and Kazuo Matsuura, Tokyo, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed Dec. 15, 1986, Ser. No. 941,858

Claims priority, application Japan, Dec. 17, 1985, 60-281656

Int. Cl.⁴ C08F 2/38, 10/02

U.S. Cl. 526—82 4 C

by at least a polymerization reaction comprising at least following two-steps:

a first step of polymerizing ethylene at a hydrogen conc … tratio … , using a catalys … a soli … d an organomet …

intrinsic viscosity of 12 to 32 dl/g in decalin …

mole % to p

PREPARATION OF ALPHA-OLEFIN POLYMERS OF RELATIVELY NARROW MOLECULAR WEIGHT DISTRBUTION

ederick Y. Lo, Yanbu Al Sinaiyah, Saudi Arabia; Thomas E. Nowlin, Somerset, and Margaret M. Wu, Belle Mead, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 816,091, Jan. 3, 1986, Pat. No. 4,677,087. This application Feb. 20, 1987, Ser. No. 17,289

Int. Cl.⁴ C08F 4/64

U.S. Cl. 526—129 28 Claims

1. A process for preparing a polymer of at least one C_2-C_{10} alpha-olefin, the polymer having a density of about 0.940 … g conducting the polymerization n … composition prepared by a proce

R are the sa … ocarbyl groups, … a halogen and n is 0, 1, or 2, the num … organomagnesium composition being … number of moles of said OH grou … whereby said organomagnesium composition is reac … with said OH groups on said carrier,

ii) removing said liquid from step (i), whereby a suppor … gnesium (Mg) composition in the form of … s formed;

… ing said solid powder, without washing …

non-polar solvent containing at least one transition metal compound soluble in the non-polar solvent, the number of moles of said transition metal compound being such that the molar ratio of the transition metal to magnesium (Mg) is about 0.3 to about 0.9, both the transition metal and Mg being calculated as elemental metals, said supported mag … being substantially insol

LIC SILICONES HAV CLUSTERS

even T. Nakos, Andover, Conn., and Samuel Q. Lin, N.J., assignors to Loctite Corporation, Newington,

Continuation-in-part of Ser. No. 623,760, Jun. 22, 1984 4,575,545, which is a continuation-in-part of Ser. No. Jul. 20, 1983, Pat. No. 4,504,629, which is a continuation of Ser. No. 571,036, Jan. 16, 1984, Pat. No. 4,675,346, which a continuation-in-part of Ser. No. 575,256, Jan. 30, 1984, P No. 4,503,208. This application Jan. 6, 1986, Ser. No. 816,5

The portion of the term of this patent sul … 2003, has been disc

Int. Cl.⁴ C08G 77/04; C08

ROOM TEMPERATURE CUR ORGANOSILOXANE COMPO

asafumi Imai, and Fumihiko Kobayashi, both of assignors to Toshiba Silicone Co., Ltd, Japan

Filed Sep. 9, 1986, Ser. No. 905,605

Claims priority, application Japan, Sep. 11, 1985

Int. Cl.⁴ C08G 77/06

S. Cl. 528—18

wherein R and R¹ may be the same o … represents a substituted or unsubst … hydrocarbon group, R² repres … selected from the group co

ichi Matsumura; Hiroo I

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ERIZED FATTY ACID AND POLYETHE POLYAMINE

ebert Wiemers, Monheim, Fed. Rep. of Germany, and Italo Albini, Pavia, Italy, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany
Continuation of Ser. No. 678,230, Dec. 5, 1984, abandoned, which is a continuation of Ser. No. 359,167, Mar. 17, 198, abandoned. This application Jul. 29, 1986, Ser. No. 892,729
Claims priority, application Fed. Rep. of Germany, Mar 1981, 3111226
Int. Cl.⁴ C08G 69/34

ermoplastic polyamide having acid and amine num m about 0.3 to 15.0 each and having a flexibility Test consists essentially of

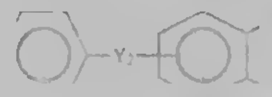
f at least one dimeriz m about 24 to 44 carbon atoms, in

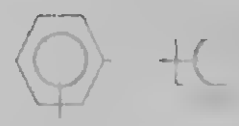
l percent of at least one mono 12 to 22 carbon atoms, w cent of at least one polye

ns, and R represents a linear or branched diva tic hydrocarbon radical having from 1 to 6

INING POLYAMIDE ACID E AND POLYIMIDE

Fujisaki, and Noriyuki Kinjo, all of Hitachi, Japan, assignors to Hitachi, Ltd. and Hitachi Chemical Co. Ltd., both of Tokyo, Japan
ivision of Ser. No. 670,977, Nov. 13, 1984, abandoned. This application Sep. 8, 1986, Ser. No. 904,205
Int. Cl.⁴ C08G 73/10





is a perfluoroalkylene group, each X is independently kyl group, a fluorinated alkyl group or a halogen atom, R obtained by r is zer of 30 ir

4,760,127

PROCESS FOR THE PREPARATION OF POLYARYLENE SULPHIDE WITH MONOHALOGENO AROMATIC COMPOUND AND MONO MERCAPTO COMPOUND

lfgang Ebert, and Karsten Idel, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer AG, Leverkusen, Fed. Rep. of Germany
Filed Aug. 6, 1986, Ser. No. 893,601
Claims priority, application Fed. Rep. of Germa 85, 3529501

is hydrogen, C_1-C_4 when two radicals R one another are linke ring or a heterocyclic ms, and one radical R sed on the sum of the dihalogen and II, of a tri- or tetrahalogen

nd of the formula I

wherein G is a replaceabl

olfgang Ebert; Karsten Idel
Schubart, Bergisch Gladba

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NG HIGHLY VISCOUS
POLYHEXAMETHYLENEADIPAMIDE

ain Haering; Heinz Herrmann; Wolfgang Klein, all of Stuttgart; Herbert Ocker, Leonberg; Hans Werner, Stuttgart, all of Rep. of Germany; Elvina. S. Bokarjowa, Moscow, R.; Sijar N. Nurmuchamedow, Moscow, U.S.S.R.; y I. Feidel, Moscow, U.S.S.R.; Larisa A. Nosowa, Moscow, U.S.S.R., and Alla A. Dukor, Moscow, U.S.S.R., assignors to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany and Nautschno-Protsvodstvennoje Objedinenije "Plastmassy , Moscow, U.S.S.R.

Filed Jul. 31, 1986, Ser. No. 891,025

Claims priority, application U.S.S.R., Jul. 31, 1985, 39245 d. Rep. of Germany, Feb. 19, 1986, 3605202

Int. Cl.⁴ C08G 69/46, 69/45

S. Cl. 528—481 11 Claims

scous polyhexame-

ymer in the extruder by treatment in ranged zones of alternatingly ele- essure zones are and said

t elevated pressure steam wh

atform rate over the 280° C. in the first

SE INHIBITORS AND ME
ISOLATION OF SAME

bert C. Thompson, Boulder, Colo., and Kjell Ohlsson, Glemmingebro, Sweden, assignors to Synergen Biologicals, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 678,823, Dec. 6, 1984, abandoned. This application Dec. 2, 1985, Ser. No. 803,423

Int. Cl.⁴ C07K 13/00

10 Claims

ase inhibitor protein comprising a purified protein having at least one active site r activity wherein said

oe, glycine and arginine

4,760,131

WOUND-HEALING COMPOSITION

ohn S. Sundsmo, Pleasanton; George A. Ksander, Menlo Park, and John M. McPherson, Sunnyvale, all of Calif., assignors to Collagen Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 855,508, Apr. 23, 1986, abandoned. This application Jun. 23, 1986, Ser. No. 877,266

Int. Cl.⁴ C07G 7/00 A61K 37/12

(a) fibri
1 to al
(b) about 0.1
a glycosamin
of heparin, a

ROCESS FOR PREPARING CATIONIC HYDRAZONE DYESTUFFS

Hans-Lothar Dorsch, Cologne; Dietmar Kalz, Neunkirchen; Volker Hühne, and Roderich Raue, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft Leverkusen, Fed. Rep. of Germany

Filed Dec. 16, 1986, Ser. No. 942,467

Claims priority, application Fed. Rep. of Germa 85, 3545605

Int. Cl.⁴ C

S. Cl. 534—574

1. A pr
the formul

to C1-alkyl and

he alkylsulphate

4,760,133

PROCESS FOR PREPARING DISAZO DYES WI BIS-ANILINO METHANE COUPLING COMPONENT

Toshio Niwa; Kiyoshi Himeno, both of Yokohama; Shuichi Maeda, Saitama, and Yukiharu Shimizu, Yokohama, all of Japan, assignors to Research Association of Synthetic Dyestuffs, Tokyo, Japan

Filed Jan. 14, 1983, Ser. No. 457,872

Claims priority, application Japan, Jan. 28, 19

Int. Cl.⁴ C09B 31/12, 39/00, 41/00

IPOUNDS CON
PBY COPELL

Anthony J. Corso, Coventry, R and Hans H. Steuernagel, h

ville, N.J.

whe
M

Ky., assignors to University on, Lexington, Ky.

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Nobutoshi Yamada; Hid
ma, Japan, assignors to Isl
Ltd., Osaka, Japan
Filed Apr. 23, 1985, Ser. No. 726,384
Claims priority, application Japan, Apr. 27, 1984, 59-8
Dec. 19, 1984, 59-268012
1985, 60-32391; Mar. 1

R = -OH or H and R_1 is a primary a
bon atoms effective in inhibiting glucose
t and said intermediate
ng the solvents, and
pyl) carbodiimide HCl
g while maintaining the pH of
lly 5.8 so as to form a second
l (3) said second intermediate product
ng compound selected from a group
amine and ethanolamine by dissolving

C_{1-3} alkylcarbonyl-C_{1-3} alkyl
substituted by a halogen atom

ie phenyl group
yl group and the
subsituted by a halogen atom, a
group, a C_{1-3} alkyl group, a C_1
lkylthio group, a C_{1-3} alkyca
ycarbonyl group or a di-C
each of the C_{1-3} alkyl gr

both X_1 and X_2 are said

said thienyl group,
X_1 and X_2, when taken together with the adjacent c

alkenediyl group,
alkynediyl group,

cloalkaned

which may be sbustituted by a h

carbonyl group, a l
alkoxycarbonyl group

bonyl group
tuted by the

group, the C_{2-1}
up, the C_{3-10} c
group, the C_{5-10} cycloalkenyl group
carbonyl group and the C_{1-10} alkoxy
may be substituted by a halogen at

tah
ontinuation

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ʒ AGENTS AND THEIR PREI

becca S. So, New Milford, Conn., and Albert A. Wall
Sarraz, Switzerland, assignors to Nestec S. A., Vevey, S

Continuation-in-part of Ser. No. 680,994, Dec. 13, 1984,
abandoned. This application Jan. 29, 1986, Ser. No. 823,60
Int. Cl.⁴ A23L 2/40; A61K 9/46

18 Claims

mprising

metal hydroxide, oxide or mixture thereof with an aqueous carbohydrate solution at a temperature of less than 25° C

(b) adding carbon dioxide to the solution for forming a reaction medium while maintaining the resulting reactio

(c) drying the reactio n edium for

4,760,139

METHOD OF PREPARING D-RIBOSE

ude Feniou; Micheline Grignon, both of Pessac; Brigitte Lacourt, Talence; Henri Pontagnier, Pessac, and Bernadette Rezzonico, Villenave D'Ornon, all of France, assignors to Laboratoires Sarget, Cedex, France

Filed Sep. 22, 1986, Ser. No. 909,911
Claims priority, application France, Sep. 20, 1985, 85 1409
nt. Cl.⁴ C07H 1/00, 3/02, 15/04

4 Claims

f synthesizing D-ribose, comprising the steps

preparing a 1,5-di-O-alkyl-D-xylofuranoside from D-xylose,

substituting a member selected from the group consisting of a mesyl group and a methyldithiocarbonyl gr

of the protons of the hydroxyl groups at C2 a

SUBSTITUTED
HA-1-AZABICY
IC ACID, DIPR
ESTERS

Robert Babine, Pomona, and Ving J. Lee, Monsey, both of N
assignors to American Cyanamid Company, Stamford,
Filed Oct. 20, 1986, Ser. No. 9
Int. Cl.⁴ C07D 501/18; A61K

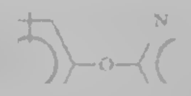
4,760,141

HYDROCARBYL(POLYPHENOL)-POLY(2... RAMETHYL PIPERIDYL-1,3,5-TRIAZINE STABILIZERS FOR SYNTHETIC POLYM COMPOSITIONS

Yutaka Nakahara, Okegawa, and Etsuo Tobita, Urawa, both of Japan, assignors to Adeka Argus Chemical Co., Ltd., Uraw, Japan

Division of Ser. No. 884,147, Jul. 10, 1986. This app
17, 1987, Ser. No. 98,427
Claims priority, application Japan, Jul. 16, 1985, 60-15635
Int. Cl.⁴ C07D 403/00; C08K 5/34
U.S. Cl. 544—209

22 Claims



drocarbyl group having the valence n
lected from the group consisting of hyd

yl having from three to about
d aryl having from six to about

having from si
d R₈ taken toge
g the nitrogen a
cted from the group co
kyl having from one to

VALENT HAPTEN DERIVATIVES

Primes; Gerald F. Sigler, both of San Dieg
Gerd Grenner, and Wolfgang Kapmeyer, both of Marbur
Fed. Rep. of Germany, assignors to Hoechst Celanese Corpo
ration, Somerville, N.J.
Continuation-in-part of Ser. No. 825,425, Feb. 3, 1986, which
a continuation-in-part of Ser. No. 675,374, Nov. 27, 1984. Th
application Jul. 6, 1987, Ser. No. 69,747
Int. Cl.⁴ G01N 33/351; C07D 239/72

lent hapten derivative comprising tw

m is in depen

CYCLOPROPANE DERIVATI

d McDonald, Marlow, and Roger Salmon
of England, assignors to Imperial Chemica
London, England
Division of Ser. No. 712,252.
This application No

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4,760,145

CERTAIN 6,7-METHYLENE DIOXYDIHYDRO OR TETRAHYDRO-ISOQUINOLINE DERIVATIVES

Yoshiharu Morita, Yokohama; Naoshi Imaki, Atsugi; Hisao Takayanagi, Yokohama; Tadashi Shirasaka, Machida; Tetsuro Shimpuku, Yokohama; Yuki Takuma, Machida, and Mari Oishi, Yokohama, all of Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

Filed Aug. 28, 1986, Ser. No. 901,388

Claims priority, application Japan, Sep. 4, 1985, 60-195626; ep. 11, 1985, 60-201074; Sep. 25, 1985, 60-211294

4,760,146

ALENE CARBOXYLIC ESTERS AN AS ANTIDYSRHYTHMIC AGENTS

Toder, Rochester, N.Y., assignor to Penn hiladelphia, Pa.

Filed Feb. 18, 1986, Ser. No. 830,592

on of the term of this patent subsequent 2003, has been disclaimed

ther independently hydrogen, C_1-C_7 cyclo- alkyl, or R_2 and R_3 taken together with the atom forms pyrrolidino, piperidino, thyleneimino, 1-methylpiperazino, or

HYDROPYRIDINES AND THEIR USE MEDICAMENTS

Karl Schönafinger, Alzenau; Helmut Bohn, Schöneck; Piero Martorana, Bad Homburg, and Rolf-Eberhard Nitz, Frankfurt, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 759,296, Jul. 26, 1985. This application De 12, 1986, Ser. No. 941,176

Claims priority, application Fed. Rep. of Germany, Aug. 24 1984, 3431152

Int. Cl.⁴ C07D 413/04

U.S. Cl. 5

1. Isopropyl 1,4-dihydro-2,6-dime phenyl)-3-(1,3,4-oxadiazol-2-yl)-pyridine cally acti

4,760,148

LKYL SUBSTITUTED 2H-BENZOTRIAZOLES AND STABILIZED COMPOSITIONS

Raymond Seltzer, New City, and Roland A. E. Winter, Armonk, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley,

d Sep. 3, 1985, Ser. No. 7

Int. Cl.⁴ C07D 249/20

R_1 is hydrogen, hydroxyl, alkyl of 1 to 12 ca alkoxy of 1 to 4 carbon atoms, phenyl, pheny

2 to

formula II.

R_4 is hydrogen, alkyl of 1 to 4 carbon atoms, al 12 carbon atoms, chlorine or hydroxyl, and

R_5 is hydrogen, hydroxyl, alkyl of 1 to 12 ca chlorine, cycloalkyl of 5 to 6 carbon atoms

ERICALLY MODIFIED BOR OMPOUND, A PRODUCTION HEREOF, AND A METHOD FOR PRODUCI OPTICALLY ACTIVE ALCOHOL DERIVATIVE USE THEREOF

Yukio Yoneyoshi, Ohtsu; Gohfu Suzukamo, Ibaraki; Kazuhiko Hamada, Kyoto, and Toshio Nishioka, Ashiya, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka Japan

Continuation-in-part of Ser. No. 688,287, Jan. 7, 1 abandoned, which is a continuation-in-part of Ser. No. Nov. 21, 1984, abandoned. This application Sep. 30, 1985, Ser. No. 781,453

Claims priority, application Japan, Dec. 12, 1983, 58 234859 Feb. 20, 1984

asymmetrically m eacting a borohydride ol having the formula

4,760,150

BISMETHYLENEDIOXYPHENYLIMIDAZOL

Shinichi Sato, Koriyama; Hideyuki Sensui, Tokyo, an Takita, Koriyama, all of Japan, assignors to Hodogay cal Co., Ltd., Tokyo, Japan

Filed Apr. 28, 1987, Ser. No. 43,448

Claims priority, application Japan, Apr. 28, 1986,

Int. Cl.⁴ C07D 4

imidazole

C. Rochat, Fribourg; Abul Iqb ret, Allschwil, and Jin Mizuguc land, assignors to Ciba-Geigy Corp

Division of Ser. No. 815,327, Dec. 31

This application Aug. 29, 1986

aims priority, application

Int. Cl.⁴ C07

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4,760,152

PYRROLIDONYL ACRYLATE BLOCK POI

avid J. Tracy, Lincoln Park; Mohamed M. Hashem, Wayne and Fulvio J. Vara, Chester, all of N.J., assignors to GAF Corporation, Wayne, N.J.

Filed Mar. 2, 1987, Ser. No. 20,840

Int. Cl.⁴ C08F *283/06*; C08G *69/14*

48—551 11 Claim

ed from the v and z are ae of from 1 to 40, except, when X greater than one and, when X' is ter than one

10 minutes to about 3 h

herein R is hydrogen or methyl, removing wate ted acid from the resulting reaction mixture an the product of d

PROCESS FOR PRODUCING MALEIC ANHYDRIDE

Youjirou Takahashi; Junichi Toyoda; Toshimasa Kushihara; Ikuo Kurimoto; Shigemi Osaka, and Yoshiyuki Nakanishi, all of Himeji, Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan

Filed Mar. 24, 1986, Ser. No. 842,934

Claims priority, application Japan, Mar. 26, 1985, 60-5962 Feb. 27, 1986, 61-40260

Int. Cl.⁴ C07D *307/60*

.S. Cl. 549—257 16 Claims

1. A process for producing maleic anhydride which comprises catalytically oxidizing benzene at a to 100 g/NM³ with air or a molecular oxy the vapor phase in a multitubular heat-exchanger- wherein

a catalyst-packed layer of the reactor is divided inlet side layer having a height 30 to 70% height of the catalyst packed layer and a gas layer having a height 70 to 30% of said total h inlet side layer comprises a catalyst [A] which

a catalyst prepared by depositing an active sul ce composed of 1 mole of vanadium pentoxide O₅), 0.3 to 1.0 mole of molybdenum trioxide)₃), 0.03 to 0.2 mole of sodium oxide (Na_2O), 0.01 of phosphorus pentoxide (P_2O_5) and 0.0001 le of an oxide of at least one metal selected from the group consisting of potassium, cesium, thallium and rubidium on a porous inert carrier comprising at least 50% by weig more than 10% by weight of aluminum oxide (Al_2O

[A-2] a catalyst prepared by depositing an active substance composed of 1 mole of vanadium pentoxide (V_2O_5), 0.3 to 1.0 mole of molybdenum trioxide (MoO_3), 0.03 to 0.2 mole of sodium oxide (Na_2O) and 0 as pentoxide (P_2O_5) on th

the gas outlet side layer comprises a catalyst [B] wh either

prepared by depositing active sub

above, or

[B-2] a catalyst prepared by depositing having the same composition as th

a catalyst prepared by depositing an active substa ng the same composition as the active substance A-2] except that the content of is (P_2O_5) is 0.01 to 0.2 mole o

ng, Princeton, and Stuart D. Hellring, assignors to Mobil Oil Corporation, New

led Oct. 21, 1985, Ser. No. 789,6

Int. Cl.⁴ C07D *319/12*

U.S. Cl. 549—377

1. A process for preparing 1,4-dioxa ng diethylene glycol with a zeolite wh lite beta, under intramolecular in each of said zeolites is chara t least 1 and wherein the proces

4,760,155

PLATINUM CO-ORDINATION COMPOUNDS

James G. Hefferman, 113 Kennedy Dr., Pangbourne, Berks, RG87LD; Paul C. Hydes, 13 Woodlands Grove, Caversham Reading, Berks, RG4 ONB, both of England, and Donald H Picker, 310 Woodside Ave., Narbert, Pa. 19380

Continuation-in-part of Ser. No. 625,251, Jun. 27, 1984, abandoned. This application Jun. 11, 1986, Ser. No. 873,130

Claims priority, application European Pat. Off., Jun. 11, 1985, 85304131.7

ed from the cla arboxylate and

kyl and cycloalkenyl residues, or R and R' lected from the class consisting of a methylene ene, cycloalkyl, cycloalkenyl or aryl residues, R r polymethylene, and Y is a funct arboxylic acid and derivatives

PLATINUM CO-ORDINATION COMPOUNDS

James G. Hefferman, 113 Kennedy Drive, Pangbourne, Berks RG8 7LD; Michael J. Cleare, "Lyndhurst", Chalkhouse Green Kidmore End, Reading, both of England, and Donald H. Picker, 310 Woodside Ave., Narbert, Pa. 19380

Continuation-in-part of Ser. No. 625,250, Jun. 27, 1984, abandoned. This application Jun. 11, 1986, Ser. No. 873,131

Claims priority, application European Pat. Off., Jun. 11, 1985, 85304130.9

U.S. Cl. 556–

lene and s R is selected

Ralph G. Child, Pearl River; Panayota Bitha, Po Hlavka, Tuxedo, and Yang-I Lin, Nanuet, all

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4,760,158

NITRILES

Ian A. Cliffe, Cippenham, and Richard S. Todd, Burnham, Nr Slough, both of England, assignors to John Wyeth & Brother Limited, Maidenhead, England

Filed Mar. 9, 1987, Ser. No. 23,32

Claims priority, application United Kingdom,

4,760,159

METHOD FOR AMMOXIDATION OF PARAFFINS AND CATALYST THEREFOR

Dev D. Suresh, Macedonia; David A. Orndoff, Windsor; James F. Brazdil, Mayfield Village; Linda C. Glaeser, Cleveland Heights, and Maria S. Friedrich, Lyndhurst, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Mar. 13, 1987, Ser. No. 25,906

Int. Cl.⁴ C07C *120/14*

519 7 C

for the ammoxidation of a C_3 to C_5 para rated nitrile having 3–5 C atoms, which ntacting in a reaction zone said paraffin in tl in admixture with am ally an inert gaseous dil having oxygen and the empirical formula,

cated by such formula

4,760,160

PREPARATION OF 3-CYANO-4-FLUOROPHENOL

Jan H. H. Meurs, and David W. Sopher, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex

Filed Jan. 14, 1986, Ser. No. 818,639

Claims priority, application United Kingdom, Jan. 25, 1985 8501918

U.S. Cl

1. 3-Cyano-4 fluorophenol
2. Process for the preparation

150° C. a fluorohalocyclohexadienone of form

4,760,161

LIPOXYGENASE INHIBITORS

Philippe L. Durette, New Providence, and Timothy F. Ga Metuchen, both of N.J., assignors to Merck & C Rahway, N.J.

Filed Apr. 25, 1983, Ser. No. 488,09

aralkyl, ar

Kazuhiko Yamada, Akashi; Yoshifumi Yasutake, Satomi Takahashi; Takehisa Ohashi, both of Kobe hi Watanabe, Akashi, all of Japan, assignor Kagaku Kogyo Kabushiki Kaisha, Osaka, Ja

Filed Aug. 25, 1986, Ser. No. 9

Claims priority, application

Int. Cl.

an Wenger, Uster, and Paul Winternitz, G Switzerland, assignors to Hoffmann-La R

Division of Ser. No. 837,986

This application Jan

Claims priority, applicatio

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acting the formyl-L-aspartic anhydride of formula (II) with the L-phenylalanine in the presence of water at 9-13 and at a temperature of from about −5° C. to to produce a formyl-L-aspartyl-L-phenylalanine,

(b) removing the formyl group from the formyl-L-aspartyl-L-phenylalanine and esterifying the resultant compound with methanol, hydrogen chloride and a filtrate which is obtained from a subsequent filtration step (d) to produce a hydrogen chloride salt of α-L-aspartyl-L-phenylalanine methyl ester,

(c) neutralizing the hydrogen chloride
phenylalanine methyl ester; and
he neutralized solution
enylalanine methyl este

4,760,165

RECOVERING USEFUL COMPONENTS AT LEAST CONTAINING DIMETHYL TEREPHTHALATE FROM HIGH-BOILING BYPRODUCTS OCCURRING IN THE PRODUCTION OF DIMETHYL TEREPHTHALATE

Hideo Hasegawa, and Takao Fujii, both of Matsuyama, Japan, assignors to Teijin Petrochemical Industries, Ltd., Tokyo, Japan

Filed Nov. 10, 1986, Ser. No. 928,300

Claims priority, application Japan, Nov. 13, 1985
eb 21, 1986, 61-35363

Int. Cl.⁴ C07C 67/48

S. Cl. 560—78 11 Claims

1. A method of recovering useful components at least containing dimethyl terephthalate from high-boiling byproducts
ng in the production of dimethyl terephth
es oxidizing p-xylene and/or methyl p-tol
olecular oxygen-containing gas in the presence of a heavy metal oxidation catalyst, subjecting the resulting oxidation product to esterification with methanol, separating dimethyl
d esters having lower boiling points than di-
late from the esterification reaction product
l thereafter treating the distillation residue
aving higher boiling points than di-
th methanol to recover at least di-

PURIFICATION OF DIPHENYL PHTHA

Adin L. Stautzenberger, Corpus Christi, Tex., assi echst Celanese Corporation, Chatham, N.J.

Filed Aug. 11, 1987, Ser. No. 84,263

Int. Cl.⁴ C07C 67/48

560—78

1. A method f
carboxylic acid w
(a) forming a slu
holic solution of an alkali compound,
(b) comminuting said slurry for a period of time suffic
reduce the ester to a particle size of 50 microns or le
g the ester from said slurry; and
said ester under subatmospheric pressure
eratures of about 225° C. to 260° C. to prod
olic ester of reduced color properties

4,760,167

G COMPOSITION OF AN AMINE AND A BLOCKED POLYISOCYANATE

Joseph A. Vasta, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 825,472, Feb. 3, 1986, Pat. No. 4,659,77
his application Sep. 19, 1986, Ser. No. 90

Int. Cl.⁴ C07C 101/24

4,760,168

PREPARATION OF ALKYL ACRYLAMIDOGLYCOLATES AND THEIR ALKYL ETHERS

Peter J. Schirmann, Fairfield, Conn., assignor Cyanamid Company, Stamford, Conn.

Continuation of Ser. No. 831,110, Feb. 19, 1986, abandone which is a continuation of Ser. No. 377,506, May 12, 198 abandoned. This application Feb. 20, 1987, Ser. No. 18

Int. Cl.⁴ C07

S. Cl. 560—170

4,760,169

PROCESS FOR THE PREPARATI HYDROXYMETHYLENEALKOXYACETIC AC ESTERS

el Arndt, and Fritz Maurer, both of Wuppertal, Fed. Rep of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 795,685, Nov. 6, 1985. This application Apr. 9, 1987, Ser. No. 36,059

ims priority, application Fed. Rep. of Ge
3441369

Cl. 560—183

Process for th

nd R¹ are identical or different a

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dmixture resulting upon the
nd

dition
eating
tep (3) at
ressure and a temperature of not
100° C in a manner and under condi-
evaporate said effluent mixture and
e vapors produced thereby from
f product and third co-solvent

4,760,171

PROCESS FOR PRODUCING

Nobuo Isogai; Akitomo Uda; Kazuo Tanaka, and Motoyuki Hosokawa, all of Niigata, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Filed Mar. 31, 1987, Ser. No. 32,257

Claims priority, application Japan, Dec. 10, 1986, 61-292425

Int. Cl.⁴ C07C

02 3 Claims

r producing ethanol which comprises react-
bon monoxide and hydrogen in the presence

] and

aving the form

ndependently hydr

(ETHOXYPHENOXY) PROPIONIC ACID

Midland, Mich., assignor to The Dow Chemical any, Midland, Mich.

Filed Dec. 22, 1986, Ser. No. 945,42

Int. Cl.⁴ C07B 57/00

6 Claims

preparation of optically active 2-(4-
c acid of at least a 75 percent enan-

4,760,173

NMR CONTRAST AGENTS

Jo Klaveness, Oslo, Norway, assignor to Nycomed AS, Norway

Division of Ser. No. 739,228, May 30, 1985, Pat. No. 4,714,607. This application Sep. 29, 1987, Ser. No. 102,533

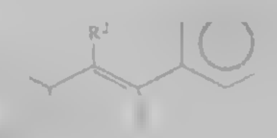
Claims priority, application United Kingdom, M

TETRALIN DERIVATIVES, THEIR PREPARATION AND THEIR USE

Fritz-Frieder Frickel, Deidesheim; Hans-Heiner Wuest, Dossenheim, and Axel Nuerrenbach, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 20, 1985, Ser. No. 778,190

Claims priority, application Fed. Rep. of Germ
1984, 3434942



(OR⁴)

ketal or $-CH(R^7)(R^8)-$ or $-CO-R^9$, where
n or C_1–C_3-alkyl, R^8 is hydrogen, C_1–C_4-alky

alkyl which is substituted by one or
r a C_1–C_4-alkoxy group, or is unsubsti-
tuted or substituted aryl or aralkyl which is unsubstituted o
substituted in the aryl moiety, and R^{14} and
hydrogen or C_1-C_6-alkyl or are each C_3-C_6-all

logically tolera

4,760,175

L-AMINODICARBOXYLIC ACID ALKENES

Paul R. Zanno, Nanuet; Ronald E. Barnett, Suffern, and Gl M. Roy, Garnerville, all of N.Y., assignors to General F Corporation, White Plains, N.Y.

Filed May 6, 1985, Ser. No. 730,967

ion of the term of this patent subsequent
2004, has been disclaimed

4,760,176

(BOXYLIC ACID-TERMINATED LYOXY-ALKYLENES AND PROCESS FOR THE PREPARATION THEREOF

val Halpern, Skokie, and Brian A. Pikelny, Bloomingdale, both of Ill., assignors to Borg-Warner Chemicals, Inc kersburg, W. Va.

Continuation of Ser. No. 811,844, Dec. 20, 1985, aba

TRIFLUOROACET

CR

Rhone Poul

ums priority, application France,
Int. Cl.⁴ C07B

temperature
below 100

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4,760,180

N-TERMINALLY SUBSTITUTED DIPEPTIDE AMIDES

Barnett S. Pitzele, Skokie; Donald W. Hansen, Jr., Chicago, Robert W. Hamilton, Wilmette; Daniel R. Pilipauskas, Glenview, and Michael Clare, Skokie, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation-in-part of Ser. No. 829,241, Feb. 14, 1986, abandoned, which is a continuation-in-part of Ser. No. 765,881 Aug. 14, 1985, abandoned. This application Jul. 14, 1986, Ser. No. 882,795

Int. Cl.⁴ C07C 103

—CN, —NH$_2$ or lower alkyl wherein n is 1 to 4, R^2 and esent lower alkyl, halogen, lower alkoxy or one of R s hydrogen and the other is lower alkyl, lower alkoxy, gen; R^4, R^5, R^7, R^8 and R^9 represent hydrogen or lower R^6 represents hydrogen, lower alkyl, lower alkenyl, or (CH$_2$)$_m$—cycloalkyl wherein m is 1 to 4 and the cycloalkyl has 3 to 8 carbon atoms, R^{10} is —(CH$_2$)$_p$—phenyl wherein p is 1 to 4; and v represents an asymmetric carbon that may be racemic or have the D or L Configuration, w represents an asymmetric carbon when R^7 and R^8 are not the same that may be racemic or have the D or L configuration, and R$_1$ may be vhen at least one of R^4, R^5, R^6

4,760,181

AGE-RESISTING POLYMERS AND THEIR PREPARATION BY REACTIONS INVOLVING USE OF CERTAIN AMINOMERCAPTANS

Arthur H. Weinstein, Hudson, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 286,494, Jul. 24, 1981, abandoned, which is a continuation of Ser. No. 144,153, Apr. 28, 1980, abandoned, which is a continuation of Ser. No. 50,021, Jun. 18 1979, abandoned, which is a continuation of Ser. No. 845,001, Oct. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 712,551, Oct. 9, 1976, abandoned. This application Mar. 1, 1983, Ser. No. 471,076

Int. Cl.⁴ C07C 103/12

l)-β-mercaptopropionamide

PROCESS FOR PREPARING SUBSTITUTED PHENOL ETHERS VIA OXAZOLIDINE-STRUCTURE INTERMEDIATES

Robert M. Ippolito, Thornhill, and Stephen Vigmond, Toronto, both of Canada, assignors to Torcan Chemical Ltd., Aurora, Canada

Filed Feb. 25, 1986, Ser. No. 832,637

Int. Cl.⁴ C07D 93/06, 263/04

564—342

and R is branched alkyl of 3 or 4 carbo of 3 or 4 carbon atoms or a pharmaceu thereof, from corresponding alpha-hyd phenol)ethanes, of formula II given b essentially of

the meaning given above with an aldehyde er alkyl substi alkyl to form

out isolation or purification thereof, rbinyl halide of general formula

DIALKYLAMINES

eodor Papenfuhs, and Walter Kuhn, both of Frankfurt a Main, Fed. Rep. of Germany, assignors to Hoechst Akti sellschaft, Frankfurt am Main, Fed. Rep. of Germa

Filed Aug. 5, 1986, Ser. No. 893,362

Claims priority, application Fed. Rep. of German 1985 3528262

U.S. Cl. 564—39

J Joachim Becker, Leverkusen assignor to Bayer Aktiengesellschaf of Germany

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and aluminum chloride being employed in an amount of i

ith a

dure

enediamine is complete

4,760,186

PREPARATION OF SUBSTITUTED AROMATIC AMINES

A. John Solodar, University City, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Sep. 15, 1986, Ser. No. 907,278

Int. Cl.⁴ C07C 85/02

13 Claims

PLATINUM AS THE CATALYST

Nosak, Greenville, Del., assignor to E.

rs and Company, Wilmington, Del

Continuation-in-part of Ser. No. 695,855

andoned, which is a continuation-in-part

g. 14, 1981, abandoned. This applicatio

No. 60,967

70° C. to 160° C. and a pressure of

e presence of a catalytic amount of

ruthenium and supported metallic platinum

ht ratio of ruthenium to platinum

INOTOLUENE

La., and Bonnie G. McK

lia, Ark., assignors to Ethyl Corporation, Richn

tinuation-in-part of Ser. No. 783,421, Oct. 3, 198

abandoned, which is a division of Ser. No. 619,67

984, Pat. No. 4,594,453. This application Oct. 9,

4,760,189

SS FOR THE PREPARA

DIAMINE-ALCOHOLS

Martine Mercier, Maintenon, and Alain Rancurel, Mainvill

both of France, assignors to Laboratoires Pharmasci

France

ontinuation of Ser. No. 683,371, Dec. 19, 1984, abandoned

This application Sep. 3, 1986, Ser. No. 903,836

priority, application France, Dec. 21, 1983, 83 20486

Int. Cl.⁴ C07

1. A p

4,760,190

AMINE PRODUCTION

Twigg, Yarm, England, assignor to Imp

stries PLC, London

Filed Jul. 23, 1986, Ser. No. 888,371

application United King

1. A p

various comprising

ALOPHENYLOPHENYLPHOSPHINE OXIDE

y, Ridgefield, Conn., assignor to Akzo Americ

rk, N.Y.

Filed Oct. 3, 1986, Ser. No. 914,9

ichard B. Warner; A

ham J. Bird; Lindsay E. Cross, and Graeme Farquharson, all of Victoria, Australia, assignors to Imperial Chemical Industries plc, London, England

Division of Ser. No. 440,592, Nov. 10, 1982, Pat. No. 4,717,415

This application Dec. 29, 1986, Ser. No. 947,36

Claims priority, application Australia, Nov. 20, 1981,

lay 25, 1982, PF4137

98—329

4,760,193

OF PREPARATI

ALDEHYDES

Lucette Duhamel; Pierre Duhamel, both of Mo

and Jean-Pierre Lecouvé, Caluire, all of Fra

Gerald W. Phillips, Thomas

Jerome L. Stavinoha, and Je

view, Tex., assignors to East

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1 to 7 carbon atoms,
-pentanal compound.

eaction at a tempera-

IR PREPARING AN ALDEHYDE OR REDUCTION OF A CARBOXYLIC ACID

umoto, and Akira Yamamoto, both of Niigata, Japan, signors to Shin-Etsu Chemical Co., Japan

Filed May 8, 1987, Ser. No. 47,61
ns priority, application Japan, Ma
Int. Cl.⁴ C07C 45

same meaning as defined above, which compri

ing a

Bernard Tury, Prestwich; Glyn R. John, Warrington, and Edward G. Scovell, Rochdale, all of England, assignors to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 25,078, Mar. 12, 1987, abandoned
application Sep. 15, 1987, Ser. No. 98 726
Claims priority, application United K
Int. Cl.⁴ C07C 39/18

DIFLUOROME
ROETHYLE
SYNTHESIS

Thomas R. Bierschenk; Timothy J. Juhlke, both of Rounde and Richard J. Lagow, Austin, all of Tex., assignors t fluor Research Corporation, Austin, Tex.

Filed Nov. 8, 1985, Ser. No.
Int. Cl.⁴ C07C 43/11, 59/135

PROCESS FOR THE PRODUCTION OF NON-AQUEOUS HYDROGEN PEROXIDE SOLUTIONS AND THEIR USE

Karlheinz Drauz, Freigericht, and Axel Kleemann, Hanau, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 648,137, Sep. 7, 1984, I
This application Aug. 4, 1987, Se
Claims priority, application Fed. Rep

t reactant and (2) aqu
lvent or mixture of

HE PRODUCTION GLYCOLS

H. Robson, both of Ch
oth Charleston, all of W
orporation, Danbury, Co
Filed Dec. 31, 1985, Ser
Int. Cl.⁴ C07C 29

William D. Diana, Belle Mead, and David L Elizabeth, both of N.J., assignors to Exxon Resear eering Co., Florham Park, N.J

Continuation of Ser
applicati

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OCESS FOR DEODORIZING ISOPROPYL ALCOHOL
nther Osterburg, Rheurdt; Karl-Heinz Gluzek, Alpen; Wolfgang Reith, Glinde, and Wilhelm Neier, Rheinberg, all of Fed. Rep. of Germany, assignors to Deutsche Texaco Aktiengesellschaft, Hamburg, Fed. Rep. of Germany
led Jan. 5, 1987, Ser. No. 385
application Fed. Rep. of Germa

by

4,760,205
ORO-2-METHYLALKANES
IR PREPARATION AND THEIR
USE
ton Probst; Klaus Raab, both of Burgkirchen, and Konrad von Werner, Halsbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of

Filed Dec. 31, 1986, Ser. No. 948,030
Claims priority, application Fed. Rep. of Germ

CHLORIDE IN A QUENCH TOWER
Schneider, Broadview Heights, Ohio, assign
F. Goodrich Compa
Filed Oct., 1
Int. Cl.⁴ C07

ene and mat

ranze

and effluent in

often

the butadiene

column, distil

from said vin

4,760,207
E ETHYLENE, CHLORINE A
VENTED WASTE GAS FROM DI
CHLORINATION REACTOR
Cowfer, Medina, Ohio, assignor to B
ompany, Akron, Ohio
Filed Sep. 18, 1986, Ser. No. 908,744
Int. Cl.⁴ C07C 17/02; 17/154; 17/38

minimizing corrosion due to

chael Herzhoff, Much; Karl-Wil
; Guido Steffan, Odenthal, and
adbach, all of Fed. Rep. of Ge
Aktienges
Continuation

ms priority, application Fed. R
3416

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water, containing a carbo

yoxyalkylene sorbitan, a

n the boiling point of the organ

r higher than the temperature

ter while the solvent is bein

ELECTRICAL INSULATING OILS

Takao Katayama, Ichihara, Japan, assignor to Idemitsu Kosan Company Limited, Tokyo, Japan

ontinuation-in-part of Ser. No. 865,044, May 19, 1986, Pat. . 4,731,495. This application May 26, 1987, Ser. No. 54,317

Claims priority, application Japan, May 29, 1985, 60-114255

he portion of the term of this patent subsequent to Mar. 15, 2005, has been disclaimed.

Int. Cl.⁴ H01B *3/22*

U.S. Cl. 585—6.6 11 Claims

1. An electrical insulating oil consisting essentially of a oil having a boiling point of not less than 150° C., a viscosity of 2 500 centistokes (at 40° C.), a pour poin 35° C., a sulfur content of from more than 1,000 ppm, an aromatic hydrocarbo d point of less th

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Filed Dec. 17, 1986, Se

aims priority, application Austra

85253, and Keith

S AND SPAC ABLE AND AI COMPONENTS

ia, Wenzenbach, and Rudolf Schaller, Altegl h of Fed. Rep. of Germany, assignors to Siemen engesellschaft, Berlin and Munich, Fed. Rep. of German

Filed Mar. 3, 1986, Ser. No. 835,846

ims priority, application Fed. Rep. of Germany, Apr. 1

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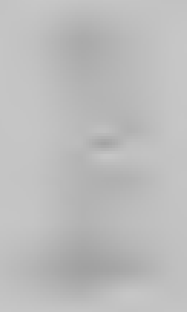

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TCH HAVING AIR VI BOARD

Mitsumasa Kako, Tokai
Fukuo, Kasugai, all of Japan, assignors to Br
Kabushiki Kaisha, Aichi, Japan
Filed Feb. 3, 1987, Ser. No. 10 536

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INTER-LOCKED BUTTON ACTU SWITCH SYSTEM, PARTICULAI INSTRUMENTATION WITH

air Shores, Mich
re, Inc., Dearborn
, 1987, Ser. No. 112,9
H01H 3/00, 13/00

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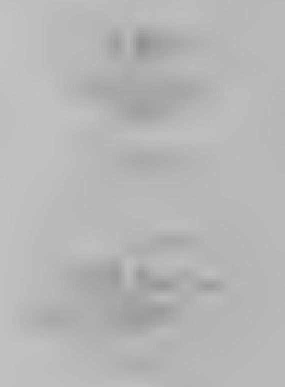

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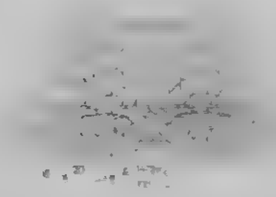
etsuyoshi Yoshida; Mitsutoshi Higuchi; Minoru Nishio
Hirai; Shigeo Nakamura, and Shinichi Hikita, all of
Japan, assignors to Kabushiki Kaisha Tokai Rika
Seisakusho, Aichi, Japan
Filed Jan. 15, 1987, Ser. No. 3,554
Int. Cl.⁴ H01H 13/5
(e) –6' U



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portion formed into

e by an elastic force

4,760,222
VACUUM CIRCUIT INTERRUPTE
Ietsumasa Yorita, Amagasaki, Japan, assignor t
Denki Kabushiki Kaisha, Japan
Filed Sep. 22, 1987, Ser. No. 99,74
Claims priority, application Japan, Sep. 29, 198
Int. Cl.⁴ H01H

is selected to be 80°~100°.

4,760,223
VACUUM CIRCUIT INTERRUPTE
zuki, Sagamihara, Japan, assignor to Kab
Toshiba, Kawasaki, Japan
Filed Oct. 14, 1987, Ser. No. 108,12
ms priority, application Japan, Oct. 25, 198

a contact means made of a l
silver alloy, said contact

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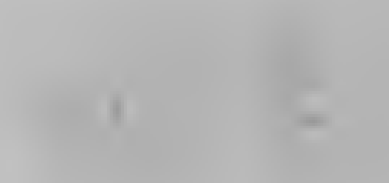
AIR CIRCUIT INTERRUPTE
Yasusi Genba, Fukuyama, Japan, assignor
Kabushiki Kaisha, Japan
Filed Mar. 25, 1986, Ser. N
priority, application Japan
Int. Cl.⁴ H01
0—153 SC



Filed Jan. 14, 1987, Ser. No. J

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ockholm, Sweden

iled Sep. 20, 1985, Ser

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'86 00210, § 371 Date Mar. 12, 1
1987, PCT Pub. No. WO86 0699

led May 29, 1986, Ser. No. 10,166
application Japan, May 30, 1985, 60-11534

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MEMBER TO AN INNER MEMBER
iserstuhl, Switzerland, and Howard F. Gor-
nn., assignors to Elpatronic AG, Switzerland
7, 1986, Ser. No. 943,641
ation Switzerland, De

large

4,760,236
UPPORT FIXTURE FOR
FACTURE OF BELLOWS CO
ANNULAR ELEMENT
Lenzhalde 72, 7300 Esslingen, I
Nov. 17, 1986, Ser. No.
application Fed. Rep. o

elements being fixable together along ring sea

supporting fixture, the supporting fixture about an a
outer periphery of one of the ring elements abuts t
periphery of another ring element, the elements be
tioned concentrically about the axis with the inner p
of two such elements substantially parallel to each
form an adjacent ring pair; rotating the first supportin
and simultaneously directing a welding beam onto t
periphery of the adjacent ring pair to produce a
connecting the ring elements to form a bellow
quently positioning at least two bellows elem
fixture the second supporting fixture havi
he bellows elements being concentrica
otation of the second supporting fixture
periphery of each of the two bellows e
a corresponding adjacent other inner
bellows elements, rotating the suppo
neously directing a welding beam onto the adjace
periphery of the bellows elements to form a bello
positioning the bellows unit and a bellows end elem
third

element, rotating the third supporting fixture and simul
neously directing a welding beam onto the inner periphery
the bellow unit and adjacent end element; and, prior to s
step of positioning at least one pair of ring elem
annular surface on the inner and outer perip
elements the surface being formed at a r
direc

4,760,237
LASER BEAM MACHINE
Masayoshi Mizukado; Minoru Tashiro, both of Kani, and Yo
shihiro Muto, Mino, all of Japan, assignors to Yamazak
Mazak Corporation, Niwa, Japan
Jul. 7, 1987, Ser. No. 70,903
plication Japan, Jul. 7, 1986, 61-159291

Allan Sanderson, Duxford, England,
Institute, Cambridge, England
Filed Jan. 20, 1
rity, application

Terence G. Makin, Tiverton, England, assig
Paper Company (UK) Limited, Devon, Eng
Filed May 23, 1986, Ser. No. 86
Claims priority, application United Kingdom
8513322, Mar. 18, 1986, 8606665

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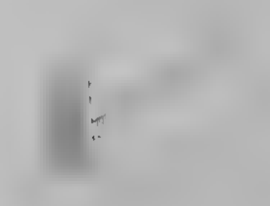
Kawamura, Yokohama; Katsuhide Natori, Yokohama; Tak-
shi Nagai, Yokohama, and Shigeki Okamoto, Kawasaki, all of
Japan, assignors to Fujitsu Limited, Kawasaki, Japan
560,174, Dec. 12, 198
application Feb

)F HIGH-SPEED ROI
LET WELDING
and Masatoshi Murayama, all
ppon Kokan Kabushiki Kaisha

Apr. 24, 1986, Ser. No
application Japan, Ap

umbia; Francis V. Buek
ge Park, all of Md., assig

D DRIER PAR
BATHROOM
C. Tedioli, Forli, Italy, assignor to Eugenio
lozzo Monzese, Italy, a part interest
Filed Aug. 24, 1987, Ser. No. 88,75
pplication Italy, Se
Int. Cl.⁴ H05



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SEMICONDUCTOR MATERI
Dokyaar, Kaethe-Kollwitz-Strasse 3a, 8
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[illegible] Alexander M. Ad [illegible]

[illegible] ppert, Hoffman Estates, Ill., [illegible]

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...ed Oct. 18, 1985, Ser. No. 79...

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SE WHOLE BODY COUNT
k, Vincentown, N.J.; John P. Andre
J., assignors to Westinghouse

ALPHA-TYPE ELECTRON ENERGY FI
...nald Rose, Darmstadt, and Stefan Lauto, Rossd...
Fed. Rep. of Germany, assignors to Carl-Zeiss Sti...
...tenheim, Fed. Rep. of Germany
Filed Sep. 12, 1986, Ser. No. 907,04...
Claims priority, applicat...

...loore, Austin, all of Tex., assignors

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...ont H. Pistor, Fairfax, Va., assig...

[illegible]

...ker GmbH, Mannheim, Fed. Rep...

..., 26, 1986, Ser. No. 912,93...

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RADIOACTIVE

...Venelles, France, assig...

...nique, Paris, France

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International Corporation, Stamford, Conn.

Filed Mar. 25, 1986, Ser. No. [illegible]

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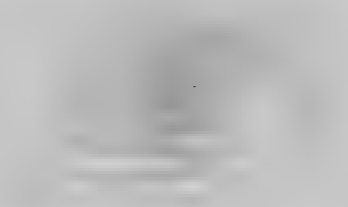

, Toyota, all of Japan, assignors to Nippondenso

parameter

4,760,276
STEM, FOR SEGMENTED LOAD
HAVING PHANTOM REDUNDANC
Ettore R. A. Lethellier, Los Angeles, Calif., ass
Corporation, Detroit, Mich
Filed Nov. 9, 1987

r, Laguna Niguel, Calif., assign
nc., Mission Viejo, Calif.
d Feb. 13, 1987, S

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AND APPARATUS FOR THE SYNCHRONIZATION OF SQUARE SIGNALS

chwefel, Traunreut; Martin Huber, Asten, and Alois ...ermann, Bussdorf-Soodermoning, all of Fed. Rep. of ...many, assignors to Dr. Johannes Heidenhain GmbH ...reut, Fed. Rep. of Germany

clock generator operative to generate a clock ...gnal and comprising an output, the clock signal applicable to the clock input of each toggle circuit;

- plurality of switching means, each switching means associated with a respective one of the toggle circuits and connected to one of the data and clock inputs to control the application of one of the square and clock signals to the respective toggle circuit; and
- a combinatorial logic network comprising a plurality of inputs connected to the togle circuit outputs, the network connected to control each switching means and operative such that control of each switching means is dependent on the state of the inputs of the combinatorial logic network.

Yoshihiro Takemae, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 6, 1987, Ser. No. 11,947

...s priority, application Japan, Feb. 8, 1986, 61-024955

Int. Cl.⁴ H03K 19/096, 19/01

...transistor and said gate of said

BOOTSTRAP DRIVER CIRCUIT

...ino, and Brian R. Carey, Sunnyvale, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Nov. 13, 1986, Ser. No. 930,593

Int. Cl.⁴ H03K 17/60, 3/26, 19/01

307—270 16 Claims

A circuit for driving digital signals from a signal source through an output terminal onto a line, said circuit comprising

- an output transistor having an emitter terminal connected to said output terminal, a base terminal connected to a first current source, and a collector terminal coupled to a first voltage supply source;
- a second transistor having an emitter terminal connected to said base terminal of said output transistor, a base terminal connected to a second current source, and a collector terminal coupled to said first voltage supply source;
- switching means connected to said output terminal, said base terminal of said output transistor and said base terminal of said second transistor, said switching mean coupling and uncoupling said output terminal, and said base terminals of said output and second transistors to ground, responsive to a data signal from said signal source; and

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4,760,283

DYNAMIC INPUT LATCH

Sam M. Weaver, Sherman, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 901,926, Aug. 29, 1986. This application Nov. 17, 1987, Ser. No. 124,4...

...cuit for use with an input signal

...termediate stage for
...l predetermined time

4,760,284

PINCHOFF VOLTAGE GENERATOR

Stewart S. Taylor, Beaverton, Oreg., assignor to TriQuint Semiconductor, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. No. 2,082, Jan. 12, 1987. This application Mar. 13, 1987, Ser. No. 25,467

Int. Cl.⁴ H03K 3/01

U.S. Cl. 307—296 R 26 Claims

1. In an integrated circuit, a pinchoff voltage generator comprising:

- a first depletion-mode FET having a drain connected to an output node, a source connected to a first supply voltage

---

1. A temperature compensated integrate... ...vice comprising

- a substrate having an epitaxial layer thereon
- a Hall effect element formed in said epitaxial layer, said ... effect element having first and second output termin... between which is produced a voltage difference indicative of the magnitude of an applied magnetic field; and
- amplifier means connected to the first and second output terminals of said Hall effect element for receiving a voltage difference produced in response to a magnetic field and producing an output voltage whose magnitude is substantially linearly related to the magnitude of the magnetic field over an extended temperature range, said amplifier means including resistor means having a first resistive portion formed in the epitaxial layer and a second

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resistive portion having a constant temperature coefficient.

4,760,284

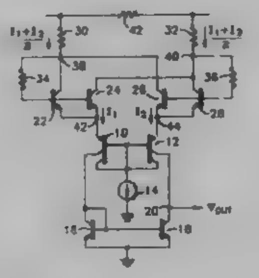
COMPARATOR WITH INPUT OFFSET CURRENT ELIMINATION

John M. Pigott, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 20, 1987, Ser. No. 75,788

Int. Cl.⁴ H03K *5/24, 5/153*

U.S. Cl. 307—350 7 Claims



1. A comparator circuit, comprising:
comparing means having first and second inputs and having an output; and
first means coupled to said first and second inputs and to a source of first and second potentials for rendering the currents flowing into said first and second inputs substantially equal, said first means comprising:
second means for providing a first current from said first potential;
third means for providing a second current from said second potential;
a first NPN transistor having a collector coupled to said second means, a base coupled to its collector, and an emitter coupled to said first input;
a second NPN transistor having a collector coupled to said third means, and emitter coupled to said second input and having a base coupled to its collector;
a third NPN transistor having a collector coupled to said third means, an emitter coupled to said first input and a base coupled to the base of said first NPN transistor; [illegible]
a fourth NPN transistor having a collector coupled to said second means, an emitter coupled to said second input, and a base coupled to the base of said second NPN transistor.

4,760,287

VOLTAGE COMPARATOR CIRCUIT

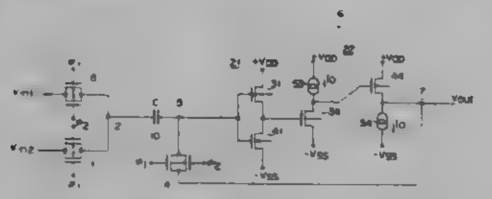
Junkei Goto, Kawasaki; Masayuki Sahoda, and Tetsuya Iida, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 18, 1987, Ser. No. 27,404

Claims priority, application Japan, Mar. 29, 1986, 61-72119

Int. Cl.⁴ H03K *5/24*

U.S. Cl. 307—355 4 Claims



1. A voltage comparator circuit comprising:
first and second switching means to whose input terminals first and second input signals are respectively input, output terminals of said first and second switching means being commonly connected;
a capacitive element;
an amplifier circuit comprising a cascade circuit of an inverting amplifier section having a high voltage gain and a non-inverting amplifier section having a low output impedance, a signal of a common connection terminal of said output terminals of the first and second switching means being input to the amplifier circuit via said capacitive element, said inverting amplifier section being constituted by a complementary type MOS inverter composed of a P-channel type MOS transistor and an N-channel type MOS transistor, and said non-inverting amplifier section being constituted by a cascade connection circuit composed of a source follower circuit of a P-channel type MOS transistor and a source follower circuit of an N-channel type MOS transistor; and
third switching means connected between input and output terminals of said amplifier circuit.

4,760,288

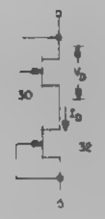
TEMPERATURE COMPENSATION FOR SEMICONDUCTOR LOGIC GATES

Andrzej Peczalski, Brooklyn Park, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 21, 1986, Ser. No. 887,774

Int. Cl.⁴ H03K *19/094, 3/353, 3/26, 17/16*

U.S. Cl. 307—448 19 Claims



1. A temperature compensated electrical circuit comprising depletion mode MESFETS, said circuit being constructed at least in part in a body of semiconductor materials, said circuit having temperature compensation means, said temperature compensation means comprising:
a first depletion mode MESFET means having first and second terminal regions in said semiconductor body and a gate terminal region comprising a metallic electrical conductor means on a surface of said semiconductor body, wherein said first depletion mode MESFET means' first terminal region is operated at a higher voltage than said first depletion mode MESFET means' second terminal region, said first depletion mode MESFET means' gate terminal region is electrically connected to said first depletion mode MESFET means' first terminal region, and said first depletion mode MESFET means is operated at current levels within its linear region of operation; and
second depletion mode MESFET means having first and second terminal regions in said semiconductor body and a gate terminal region, wherein said second depletion mode MESFET means' first terminal region is operated at a higher voltage than said second depletion mode MESFET means' second terminal region, said second depletion mode MESFET means' gate terminal region is electrically connected to said second MESFET means' second terminal region, said second depletion mode MESFET means' first terminal region is electrically connected to said first depletion mode MESFET means' second terminal region, and said second depletion mode MESFET means is operated at current levels in its saturation mode of operation.

4,760,289

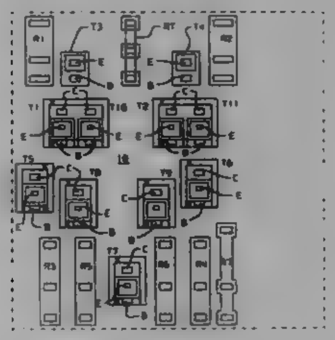
TWO-LEVEL DIFFERENTIAL CASCODE CURRENT SWITCH MASTERSLICE

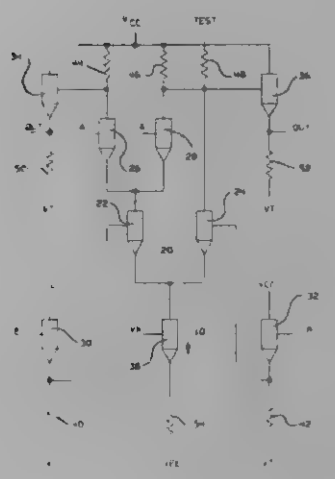
Edward B. Eichelberger, Hyde Park; Stephen E. Bello, Kingston; Rolf O. Bergum, West Hurley; William M. Chu, Hyde Park; John A. Ludwig, Woodstock, and Richard F. Rizzolo, Red Hook, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 4, 1986, Ser. No. 893,061

Int. Cl.⁴ H03K *19/177, 19/086*

U.S. Cl. 307—455 3 Claims





1. In a masterslice design system, a cell for replicated placement in an array on a semiconductor chip for subsequent wiring to form a VLSI circuit comprising:
a plurality of devices arranged so as to permit interconnection by wiring to form any of a set of basic logic circuits for interconnection with other such wired cells on the same chip to form a larger circuit, said basic logic circuits being of the two level differential cascode current switch type;
said devices being further arranged so as to permit at least one pair of said devices to be wired to form an input translator circuit;
said plurality of devices including device characteristics selected to provide a signal swing having a magnitude of approximately 200 millivolts (mv) or less.

4,760,290

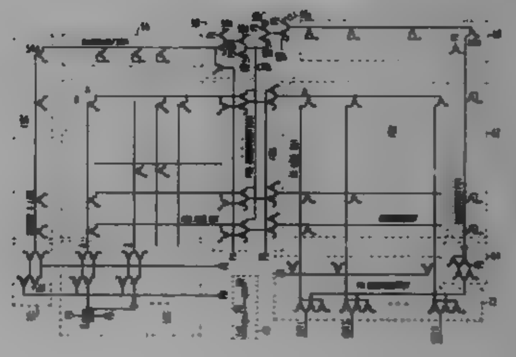
SYNCHRONOUS LOGIC ARRAY CIRCUIT WITH DUMMY SIGNAL LINES FOR CONTROLLING "AND" ARRAY OUTPUT

Antonio M. Martinez, Fremont, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed May 21, 1987, Ser. No. 53,071

Int. Cl.⁴ H03K *19/177, 17/284*

U.S. Cl. 307—465 11 Claims



1. A synchronous integrated circuit comprising:
a first two dimensional array of interconnected logic gates; said first array for receiving a plurality of input signals along a first dimension thereof and for producing a plurality of output signals along a second dimension thereof;
said first array of logic gates being constructed from a plurality of transistors connected along said first dimension and a plurality of transistors connected along said second dimension;
a first delay line having a first end and a second end and having a plurality of interconnected single transistors connected in a line; the number of interconnected single transistors in said first delay line is equal to the largest number of connected transistors in said first array along said second dimension;
a second delay line having a first end and a second end and having a plurality of interconnected single transistors connected in a line; the number of interconnected single transistors in said second delay line is equal to the largest number of connected transistors in said first array along said first dimension;
said second end of said first delay line is connected to the first end of said second delay line;
means for receiving a clock signal;
means for clocking said plurality of input signals simultaneously into said first array along said first dimension, and simultaneously for clocking a first dummy signal into said first delay line at first end thereof based upon said clock signal; and
means, coupled to said second end of said second delay line, for outputting said output signals along said second dimension from said first array when said first dummy signal reaches said second end of said second delay line.

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4,760,291
SYNCHRONOUS BUS TYPE SEMICONDUCTOR CIRCUIT WHEREIN TWO CONTROL SIGNALS SHARE COMMON TERMINAL

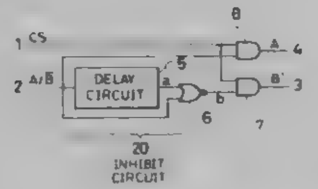
Toyokatsu Nakajima, and Tatsuo Yamada, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 27, 1987, Ser. No. 54,851

Claims priority, application Japan, May 30, 1986, 61-125996

Int. Cl.⁴ H03K *19/00, 5/00, 5/13, 5/159*

U.S. Cl. 307—480 **4 Claims**



1. A semiconductor IC device of an asynchronous bus type which is selected by a chip select signal, and which comprises

an external control signal line through which an external control signal is input, and

a first and a second internal control signal line for transfer of a first and a second control signal each of which is not activated when the other is activated,

wherein said first control signal is allocated to a first one of the "H" level and the "L" level of the external control signal, and said second control signal is activated when the external control line is at the second level which is the inverse of the first level for said first control signal,

said semiconductor IC device further comprising an inhibit circuit for preventing said second control signal from being erroneously activated while said first control signal is to be activated, and when the first level of said external control signal begins after or terminates before said chip select signal.

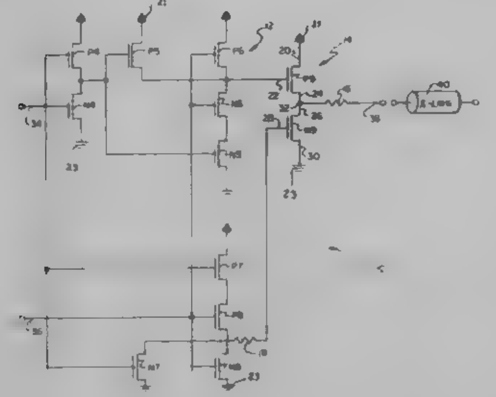
4,760,292
TEMPERATURE COMPENSATED OUTPUT BUFFER

Randall E. Bach, Stillwater, Minn., assignor to ETA Systems, Inc., St. Paul, Minn.

Filed Oct. 29, 1986, Ser. No. 925,698

Int. Cl.⁴ H03K *17/14, 17/16*

U.S. Cl. 307—475 **12 Claims**



1. An integrated circuit output buffer adapted for impedance matched coupling at a first temperature and at a second lower temperature to a transmission line having a characteristic impedance at the the first temperature, including:

an output terminal adapted to be coupled to the transmission line;

an output stage having a first output impedance at the first temperature and a second lower output impedance at the second temperature; and

compensation resistor means having impedances at the first and second temperatures and a low temperature coefficient of resistance, for coupling the output stage to the output terminal, the sum of the impedance of the compensation resistor means and the output impedance of the output stage at both the first and second temperatures being acceptably matched to the characteristic impedance of the transmission line.

4,760,293
COMBINED BIPOLAR AND MOSFET SWITCH

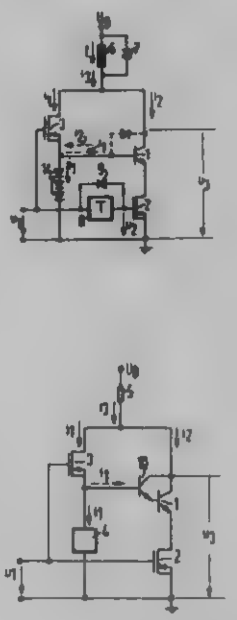
Ernst Hebenstreit, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Continuation of Ser. No. 544,156, Oct. 21, 1983. This application May 12, 1986, Ser. No. 863,811

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1982, 3240778

Int. Cl.⁴ H03K *17/10, 17/08, 17/56, 17/687*

U.S. Cl. 307—570 **17 Claims**



1. An electronic switch, comprising:

(a) a bipolar transistor having collector, emitter and base terminals, one of said collector and emitter terminals being connectable through a load to a voltage source;

(b) a first MOSFET transistor having source, drain and gate terminals, one of said source and drain terminals thereof being connected to the other of said emitter and collector terminals of said bipolar transistor;

(c) a second MOSFET transistor having source, drain and gate terminals, one of said source and drain terminals thereof being connectable through said load to said voltage source;

(d) a threshold element having at least two terminals, one of said two terminals being connected to the other of said source and drain terminals of said second MOSFET transistor and the other of said two terminals being connected to the other of said source and drain terminals of said first MOSFET transistor; the threshold element for defining a threshold voltage for operating the bipolar transistor;

(e) input means connected to said gate terminals of said first and second MOSFET transistors for coupling a control signal to said gate terminals of said first and second MOSFET transistors; and

(f) means connecting said one terminal of said threshold element to said base terminal of said bipolar transistor.

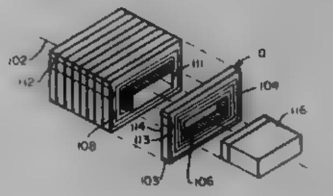
4,760,294
LINEAR MOTOR WITH INDEPENDENTLY CONTROLLED COILS

Thomas C. [illegible], 19 [illegible], [illegible], Calif. [illegible]

Continuation of Ser. No. 747,028, Jun. 20, 1985, abandoned, which is a continuation-in-part of Ser. No. 643,746, Aug. 23, 1984, abandoned, which is a division of Ser. No. 521,975, Aug. 11, 1983, abandoned, which is a continuation of Ser. No. 417,222, Sep. 13, 1982, Pat. No. 4,509,109. This application Sep. 11, 1986, Ser. No. 906,699

Int. Cl.⁴ H02P *7/06*

U.S. Cl. 310—13 **15 Claims**



1. In a linear motor: a plurality of independently energizible windings having openings aligned along an axis, an armature member movable along said axis and through the openings in said windings, and positioning means including independently controlled elements connected to said windings for selectively energizing said windings to produce a magnetic field which interacts with said armature member to position said armature member along said axis, said positioning means further including means for activating any selected one or combination of said independently controlled elements so that said armature member can be statically positioned at any selected position along said axis.

4,760,295
VIBRATION-SENSITIVE TRANSDUCER

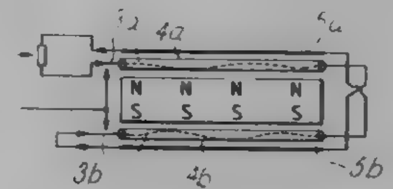
Ian Macalindin, Nr. Derby, England, assignor to Geoquip Security Systems Ltd., Melbourne, England

Filed Apr. 15, 1986, Ser. No. 852,344

Claims priority, application United Kingdom, Apr. 17, 1985, 8509815; Dec. 17, 1985, 8531050

Int. Cl.⁴ H02K *33/00*

U.S. Cl. 310—27 **21 Claims**



1. A cable type transducer in the form of an elongate cable for producing electrical signals in response to a mechanical vibration or impulse of the cable at any point along the cable comprising an elongate structure comprising elongate flexible magnetic flux generating means extending continuously longitudinally of said elongate structure, an electrical conductor and support means for supporting said electrical conductor so that it extends substantially longitudinally of the elongate structure and is loosely constrained laterally of the structure within the magnetic field generated by the magnetic flux generating means to allow limited movement of the electrical conductor relative to magnetic field generated by the magnetic flux generating means so that the said electrical conductor is movable in response to mechanical disturbance of the cable at any point along the cable, relative to the magnetic field generated by the magnetic flux generating means, so that the movement induces an e.m.f. in the electrical conductor thereby producing said electrical signals.

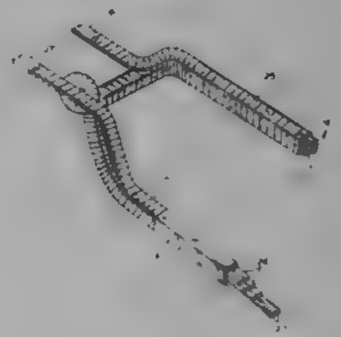
4,760,296
CORONA-RESISTANT INSULATION, ELECTRICAL CONDUCTORS COVERED THEREWITH AND DYNAMOELECTRIC MACHINES AND TRANSFORMERS INCORPORATING COMPONENTS OF SUCH INSULATED CONDUCTORS

Don R. Johnston, Ballston Spa, and Mark Markovitz, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 296,071, Aug. 25, 1981, abandoned, which is a continuation-in-part of Ser. No. 145,967, May 2, 1980, abandoned, which is a continuation-in-part of Ser. No. 61,700, Jul. 30, 1979, abandoned. This application Jul. 25, 1984, Ser. No. 634,331

Int. Cl.⁴ H02K *15/12;* **B32B** *9/00*

U.S. Cl. 310—45 **17 Claims**



16. An electrical conductor coverd with an insulating coating consisting of a polyester wire enamel and alumina filler, said alumina filler being of particle size from about 0.005 to 0.05 micron and in amount from about 5% to 40% by weight of the insulating coating.

4,760,297
SMALL APPLIANCE DRIVEN BY UNIDIRECTIONAL SINGLE-PHASE SYNCHRONOUS MOTOR

Hugo Schemmann, Schaesberg, Netherlands, and Peter E. Steiner, Klagenfurt, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 31, 1987, Ser. No. 33,125

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1986, 3610772

Int. Cl.⁴ H02K *5/24;* **F16F** *15/12*

U.S. Cl. 310—47 **10 Claims**

1. A small domestic appliance driven by a rotor of a single-phase synchronous motor (2) whose drive shaft (5) via a transmission path drives a load (9) whose work function is not dependent on the direction of rotation, the noise and vibrations produced by the motor being dependent on the direction of rotation of the motor, characterized in that a mechanical unidirectional blocking device (41) is arranged in the transmission path, which device forces the rotor to rotate in the direction which is optimum in view of operating noise and/or vibrations, said motor including resilient blocking means in its transmission path to the load said resilient blocking means being arranged so that the optimum operating noise is obtained in that

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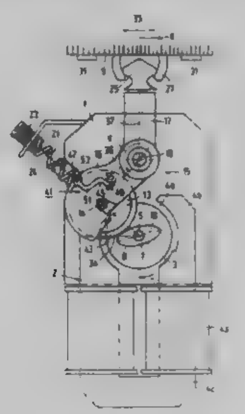
direction of rotation in which the torque exerted on the rotor (3) by the stator current becomes zero before the magnetic detent torque has become zero when the stator coils (4*d*) are not energized and the rotor is in a stable rest position, the rotor being forced to rotate in this direction by said unidirectional blocking device.



4,760,298
MAGNETIC DISK MOTOR HAVING A CUP-SHAPED ROTOR

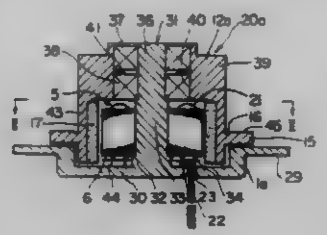
Haruo Kitahara, Iijima, and Takeshi Ohshita, Ina, both of Japan, assignors to Shinano Tokki Corporation, Nagano, Japan

Filed Oct. 6, 1987, Ser. No. 106,626

Claims priority, application Japan, May 8, 1987, 62-110786

Int. Cl.^{4} H02K *5/16, 7/08;* **B23B** *19/02;* **G11B** *25/04*

U.S. Cl. 310—67 R **8 Claims**



1. A motor for driving a magnetic disk comprising:
- a. a frame having a center shaft with a large-diameter portion, a middle portion of intermediate diameter, and a small-diameter portion, said frame including an aperture;
- b. a core disposed on said middle portion of said center shaft and abutting said large-diameter portion;
- c. an armature wound on said core, said armature receiving electric energy from wires passing through said aperture of said frame;
- d. a pair of bearings separated by a pair of springs, said bearings mounted on said small-diameter portion of said center shaft;
- e. a cup-shaped rotor pressed on said bearings to allow said cup-shaped rotor to rotate about said center shaft, armature and core, said rotor including a support means on a plane perpendicular to the axis of said center shaft; and
- f. a plurality of permanent magnets disposed within said rotor in magnetic engagement with said armature and said core, whereby when said armature is energized, said rotor rotates about the center shaft.

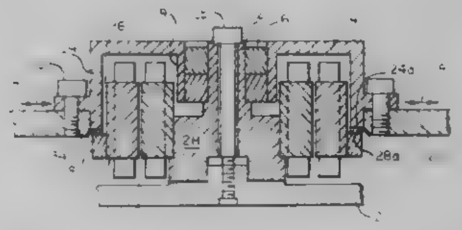
4,760,299
DISTORTION FREE SYNCHRO

Robert J. Dickie, Sun City, Ariz., and Walter J. Krupick, Succasunna, N.J., assignors to The Singer Company, Stamford, Conn.

Filed Jun. 11, 1987, Ser. No. 60,572

Int. Cl.^{4} F16F *15/12;* **G01C** *19/04;* **H02K** *5/04*

U.S. Cl. 310—91 **10 Claims**



1. An apparatus for defining angular positions, comprising:
- a support;
- a housing coupled to the support, the housing enclosing a synchro means for defining the angular position thereof relative to the support, the synchro means including a stator encompassing a rotor;
- a shaft mounted axially in the housing in concentric relationship with the rotor, a first portion of the shaft being mated with at least one bearing concentrically mounted within an inner circumferential portion of the housing, the shaft having a second portion bonded to the inner surface of the rotor wherein the rotor is guided by the bearing and rotates relative to the stator, and wherein the stator and the housing have different coefficients of expansion;
- a ring circumferentially bonded to the stator and having the same coefficient of expansion as the stator;
- means compliantly securing the ring to the housing for isolating the synchro means from dimensional changes of the housing and radial forces applied against the housing;
- whereby the angular position is accurately defined by the isolated synchro means.

4,760,300
SQUIRREL-CAGE TYPE ROTOR AND METHOD FOR ITS MANUFACTURE

Akio Yoshida; Kenji Kawaguchi; Enkichi Oura, all of Amagasaki; Takashi Okada, and Shuichi Odaka, both of Ojima, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

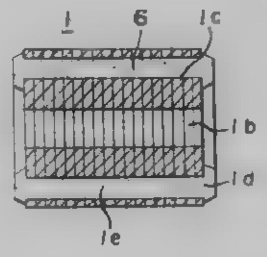
PCT No. PCT/JP86/00341, § 371 Date Mar. 4, 1987, § 102(e) Date Mar. 4, 1987

PCT Filed Jul. 3, 1986, Ser. No. 34,163

Claims priority, application Japan, Jul. 5, 1985, 60-147982; Jul. 9, 1985, 60-150553

Int. Cl.^{4} H02K *3/06*

U.S. Cl. 310—211 **4 Claims**



1. A squirrel-cage type rotor comprising:
- (a) a plurality of circular steel plates, each one of said plurality of circular steel plates having a plurality of slots and a central bore formed therethrough, each one of said plurality of slots in each one of said plurality of circular steel plates being aligned with a corresponding slot in every other one of said plurality of steel plates to form an axial slot, and said central bore in each one of said plurality of steel plates being aligned with said central bore in every other one of said plurality of steel plates to form an axial bore, and
- (b) a plurality of aluminum conductors, each one of said plurality of aluminum conductors being disposed in a corresponding one of said axial slots,
- (c) wherein the density of said plurality of aluminum conductors is approximately 2.64 g/cm^3.

4,760,301
COMMUTATOR USABLE FOR AN ELECTRIC MOTOR

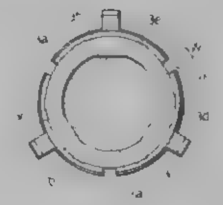
Masaki Iizima, and Toshio Takahashi, both of Kiryu, Japan, assignors to Mitsuba Electric Manufacturing Co., Ltd., Gunman, Japan

Filed Nov. 3, 1986, Ser. No. 925,975

Claims priority, application Japan, Nov. 1, 1985, 60-168988[U]; Jul. 15, 1986, 61-108369[U]

Int. Cl.^{4} H02K *13/10*

U.S. Cl. 310—233 **9 Claims**



1. A commutator usable for an electric motor, of a type adapted to be press fitted onto a support shaft of a rotor accommodated in the motor, wherein an inner wall of the commutator comprises a plurality of larger diameter arcuate portions having a radius of curvature larger than a radius of the support shaft and a plurality of flat portions having a center at a distance from a center axis of the support shaft smaller than the radius of the support shaft, said larger diameter arcuate portions alternating with said flat portions, whereby press fitting of the commutator onto the support shaft produces elastic bending deformation of the flat portions and each of the arcuate portions is elastically deformed so as to come in contact with an outer surface of the support shaft.

4,760,302
ELECTRIC FIELD MACHINE

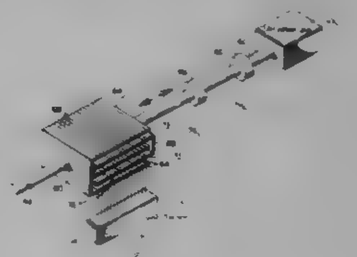
Stephen C. Jacobsen, Salt Lake City, Utah, assignor to Sarcos, Inc., Salt Lake City, Utah

Division of Ser. No. 940,264, Dec. 11, 1986. This application Sep. 24, 1987, Ser. No. 100,430

Int. Cl.^{4} H02N *1/00*

U.S. Cl. 310—308 **6 Claims**

1. An electric field machine comprising
- a first plurality of elongate, generally parallel elements capable of being charged with an electrical charge and arranged in a multiplicity of planes stacked one above another in a spaced-apart relationship,
- a second plurality of elongate, generally parallel elements capable of being charged with an electrical charge and arranged in a multiplicity of planes interleaved among the planes of the first plurality, generally parallel therewith and movable in a direction parallel with the planes,
- either the first or second plurality of elements being electrically charged, with certain elements being charged negatively and other elements, interspersed among the certain elements, being charged positively, and
- means for successively applying electrical charges to the other plurality of elements to produce electrical force fields which cause the second plurality of elements to move with respect to the first plurality of elements.



4,760,303
ELECTROSTATIC HIGH-VOLTAGE GENERATOR

Yoshinobu Miyake, Simonoseki, Japan, assignor to Japan Physitec Instrument Co., Ltd., Tokyo, Japan

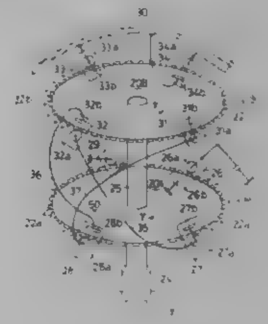
PCT No. PCT/JP86/00292, § 371 Date Apr. 10, 1987, § 102(e) Date Apr. 10, 1987, PCT Pub. No. WO86/07506, PCT Pub. Date Dec. 18, 1986

PCT Filed Jun. 11, 1986, Ser. No. 15,089

Claims priority, application Japan, Jun. 11, 1985, 60-125213

Int. Cl.^{4} H02N *1/00*

U.S. Cl. 310—308 **5 Claims**



1. an electrostatic high-voltage generator in which an electrostatic charge is transported mechanically and is stored on a high-voltage electrode, comprising: a plurality of charge carrier units (20A, 20B), each of said charge carrier units having a continuously moving peripheral edge and a plurality of con- .

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ductive pellets secured to said peripheral edge, said plurality of charge carrier units being spaced from one another and arranged in a direction at right angles to the direction of movement of said peripheral edges of said carrier units to provide a stack of said charged carrier units a first one (20A) of said plurality of charge carrier units in said stack having a ground-side inductor (26) for positive charging of said conductive pellets to carry a positive electric charge thereon and with a ground-side collector electrode (29) collecting a negative electric charge from said conductive pellets carrying a negative electric charge, a lst one (20B) of said plurality of charge carrier units in said stack having an inductor (34) with an electrode connected to a high-voltage electrode for negative charging of said conductive pellets to carry a negative electric charge thereon and having a high-voltage side collector inductor (33) which collects a positive electric charge from conductive pellets carrying a positive electric charge thereon and carries said positive electric charge to said high-voltage electrode, and a charge carrying transfer unit (50) for transferring electric charges from electrically charged pellets on one of said charge carrier units (20A) (20B) to the conductive pellets of an adjacent charge carrier unit and for transferring electric charges of opposite polarity from said adjacent charge carrier unit to said one of said charge carrier units whereby a procession of said pellets during less than one half the movement of said peripheral edge of each carrier unit carries a positive electric charge and said plurality of pellets during less than the remaining one half of the movement of said peripheral edge carries a negative electric charge, said positive and negative charges carried by said peripheral processions of said pellets are transported from one charge carrier unit to an adjacent charge carrier unit and said positively charged procession of said pellets of said one charge carrier unit is maintained opposite said negatively charged procession of pellets of said adjacent charge carrier unit.

4,760,304

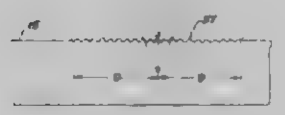
DARK FIELD COAXIAL ULTRASONIC TRANSDUCER

David W. Oliver, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Nov. 24, 1986, Ser. No. 934,520

Int. Cl.⁴ H01L *41/08*

U.S. Cl. 310—335 15 Claims



1. A dark field ultrasonic transducer for inspecting a solid body comprising:

an inner detecting transducer element and a coaxial, annular, outer transmitting transducer element;

said outer transducer element having an angular extent to emit acoustic waves that are incident on the surface of said solid body at an angle greater than the shear critical angle of said solid such that neither shear waves nor longitudinal waves are transmitted into said body;

said inner transducer element being spherical and having its focal point on or close to the surface and detecting sound scattered and reradiated from surface discontinuities and cracks in said solid body while being insensitive to any reflected sound and reradiated waves.

[illegible]

CATHODE RAY DISPLAY TUBES

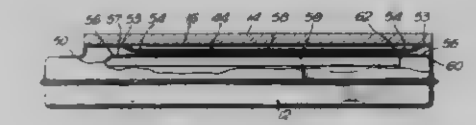
Adrian Caple, Purley, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 8, 1986, Ser. No. 905,092

Claims priority, application United Kingdom, Sep. 11, 1985, 8522541

Int. Cl.⁴ H01J *43/00*

U.S. Cl. 313—103 CM 5 Claims



1. A cathode ray display tube having an envelope with a substantially planar faceplate carrying a phosphor screen, a channel plate electron multiplier disposed substantially parallel to, and spaced from, the screen, the channel plate electron multiplier having an input side over which, in use of the tube, an electron beam is scanned and an output side facing the screen from which a current multiplied electron beam is directed onto the screen, characterized in that the channel plate multiplier is spaced from the faceplate by a spacing frame extending between the faceplate and the multiplier and engaging with the multiplier around the periphery of its output side, and in that a pressure member is provided which has a plurality of resilient fingers which engage with the input side of the multiplier at closely spaced locations around its entire periphery to urge the multiplier against the spacing frame, and accommodate for any minor unevenness of the input side of the multiplier by individual flexing of the fingers, the pressure member comprising a substantially planar base sheet extending along the periphery of the input side of the multiplier, and further comprising metal strip material extending along and secured to the planar base sheet, the resilient fingers being defined by a plurality of transverse divisions formed partway across the metal strip material, said fingers being bent such that the portions thereof engaging the multiplier are located away from the planar base sheet.

4,760,306

ELECTRON EMITTING FILAMENTS FOR ELECTRON DISCHARGE DEVICES

Ka-Ngo Leung, Hercules; Philip A. Pincosy, Oakland, and Kenneth W. Ehlers, Alamo, all of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 10, 1983, Ser. No. 503,373

Int. Cl.⁴ H01J *1/15, 19/08, 9/04*

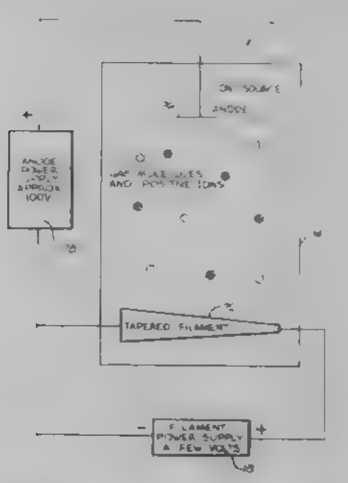
U.S. Cl. 313—341 19 Claims

1. An electron emitting device for use in an electron discharge system comprising:

a filament having a pair of terminal ends,

electrical supply means for supplying electrical power to said terminal ends of said filament for directly heating said filament by the passage of an electrical current along said filament between said terminal ends,

said filament being substantially tapered in cross section continuously in one direction from one of its pair of terminal ends to another of its pair of terminal ends to achieve uniform heating of said filament along the length thereof



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ARC POWER SUPPLY
ION MOLECULES AND POSITIVE IONS
TAPERED FILAMENT
FILAMENT POWER SUPPLY A FEW VOLTS

by compensating for the nonuniform current along the filament due to the emission of electrons therefrom.

4,760,307

ANTI-VEILING-GLARE GLASS INPUT WINDOW FOR AN OPTICAL DEVICE AND METHOD FOR MANUFACTURING SUCH WINDOW

Jonathan R. Howorth, Maldon, United Kingdom, assignor to N. V. Optische Industrie, Delft, Netherlands

Filed Jul. 24, 1985, Ser. No. 758,507

Claims priority, application United Kingdom, Jul. 26, 1984, [illegible]

Int. Cl.⁴ H01J *29/89*

U.S. Cl. 313—371 7 Claims

1. An anti-veiling-glare glass input window for an optical device particularly suitable for use as an input window for an image intensifier, said input window comprised of a clear glass faceplate having a shallow surface layer about its peripheral surface comprised of radiation-absorbent free-metal-induced colour centres.

[illegible]

ELECTRON GUN FOR COLOR PICTURE TUBES

Shoji Shirai, Koganei; Masaaki Yamauchi, Togane; Hiroshi Takano, Hachioji; Masakazu Fukushima, Tokyo, and Tatsuo Nishimura, Nagasaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

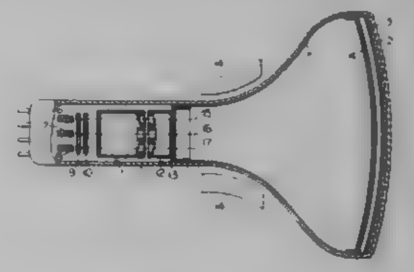
Filed Oct. 1, 1981, Ser. No. 307,572

Claims priority, application Japan, Oct. 3, 1980, 55-137800

Int. Cl.⁴ H01J *29/50*

U.S. Cl. 313—412 18 Claims

1. An electron gun for a color picture tube comprising: first electrode means for generating at least two electron beams and directing the electron beams toward a fluorescent screen of the color picture tube; second electrode means for forming substantially independent main lenses on beam paths of said electron beams respectively to focus and converge the respective beams to the fluorescent screen, said second electrode means including at least a pair of electrodes having respective apertures centered with each other for permitting the respective beams to pass therethrough; and a shield member associated with at least one of the apertures in at least one of the paired



electrodes for forming within the associated aperture an electric field inclined with respect to the axis thereof.

[illegible]

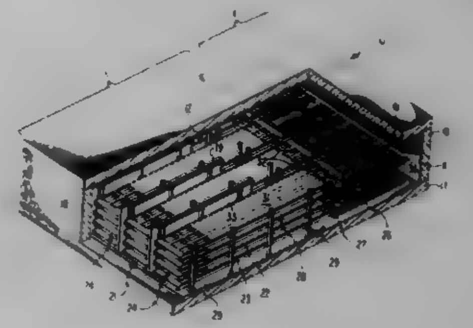
MODULATOR ELECTRODE STRUCTURE FOR FLAT PANEL DISPLAY DEVICES

Wilber C. Stewart, Hightstown, N.J., assignor to RCA Licensing Corporation, Princeton, N.J.

Filed Mar. 29, 1983, Ser. No. 479.983

Int. Cl.⁴ H01J *29/52*

U.S. Cl. 313—422 5 Claims



1. In a display device having an evacuated envelope with substantially parallel front and back walls, at least one electron beam guide assembly including at least one column of apertures, at least one cathode for emitting electrons to said beam guide assembly for propagation as beams along said column of apertures, modulation electrodes for modulating said electron beams and electrically coupled isolation electrodes arranged between said modulation electrodes; an improvement comprising:

a slit substantially centered in, and arranged along a portion of the length of each of said modulation electrodes, the opening of said slit being in the proximity of said electron beam guides; and

a portion of said isolation electrodes extending along each of said modulation electrode slits.

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4,760,310
CATHODE-RAY TUBES AND COATING MATERIALS THEREFOR

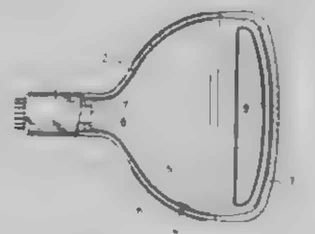
Sadao Deyama; Toshiya Yamamoto, both of Matsudo; Koichi Sakai, Tokyo; Shigemi Hirasawa, Chiba; Tadao Kubo, and Yoshifumi Tomita, both of Mobara, all of Japan, assignors to Hitachi Powdered Metals Co., Ltd. and Hitachi, Ltd., both of, Japan

Filed Jan. 21, 1986, Ser. No. 821,269

Claims priority, application Japan, Jan. 31, 1985, 60-17641; Jan. 31, 1985, 60-17642

Int. Cl.⁴ H01J *29/88, 29/92*

U.S. Cl. 313—479 **3 Claims**



1. A coating material for a cathode-ray tube including a cathode ray tube envelope, an electron gun mounted in a neck portion of the envelope and a high voltage conductor mounted on a conical portion of the envelope, said electron gun being electrically connected to said conductor through a contactor of said electron gun and an electrically conductive coating film applied on the inner surface of said cathode-ray tube envelope, wherein said coating film has a specific resistance of at least 0.2 ohm.cm and a surface roughness of at least 6 microns, and a resistance value between said high-voltage conductor and said electron gun is in a range of 2 to 100 kohm,

said coating material containing, in a weight ratio based on solid, 10 to 22% of graphite, 30 to 50% of a metal oxide, 2 to 9% of a surface treating agent and 25 to 42% of waterglass, and

at least 18% of said graphite to be suspended in its simple form in said coating material having a particle size of at least 1 micron.

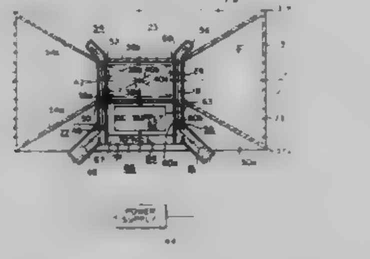
4,760,311
SUB-NANOSECOND RISE TIME MULTI-MEGAVOLT PULSE GENERATOR

Roy E. Wootton, Murrysville Boro, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 15, 1986, Ser. No. 885,632

Int. Cl.⁴ H01J *25/00*

U.S. Cl. 315—4 **13 Claims**



1. A multi-megavolt sub-nanosecond rise-time pulse generator, said generator comprising:

(a) inductive energy storage means for storing inductive energy prior to initiation of a sub-nanosecond rise-time high voltage pulse wave-front;

(b) electron beam means for generating a predetermined number of high energy electron beams along predetermined lines of trajectory for initially shorting said inductive energy storage means and storing inductive energy in said inductive energy storage means;

(c) electron beam deflector means for deflecting said electron beams thereby opening said inductive energy storage means and causing said stored inductive energy to convert to electrostatic energy, thereby producing sub-nanosecond rise-time very high voltage pulse wave-fronts;

(d) a pulse wave-front convergence chamber for receiving said high voltage pulse wavefronts produced upon deflection of said electron beams, whereby an area of convergence of said high voltage pulse wave-fronts is established momentarily within said convergence chamber.

4,760,312
DENSE SILICON CARBIDE MICROWAVE ABSORBER FOR ELECTRON LINEAR ACCELERATOR

Masakazu Watanabe, and Akiyasu Okuno, both of Aichi, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

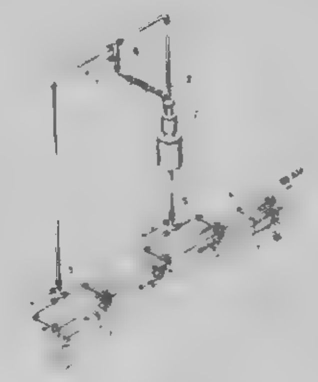
Continuation-in-part of Ser. No. 520,280, Aug. 4, 1983, abandoned. This application Feb. 5, 1986, Ser. No. 826,463

Claims priority, application Japan, Aug. 4, 1982, 135205

The portion of the term of this patent subsequent to Jan. 20, 2004, has been disclaimed.

Int. Cl.⁴ H01P *1/26*

U.S. Cl. 315—5.41 **3 Claims**



1. In an electron linear accelerator which includes a klystron used to generate high electrical energy to an electron beam accelerator guide via a waveguide and power dividers to distribute the energy provided via said waveguide to a head portion of every said accelerator guide, a microwave absorber attached to a branch portion of said power dividers and at an end portion of said accelerator guide, said microwave absorber consisting essentially of dense silicon carbide which is a semiconductor having an electrical resistivity of at least 1 ohm-centimeter, said dense silicon carbide having an electrical resistivity in a range of 1 to 10^5 ohm-centimeter.

4,760,313
CATHODE RAY TUBE DISPLAY SYSTEMS

Andrew M. Mallinson, Salem, N.H., assignor to Ferranti Plc, Cheshire, England

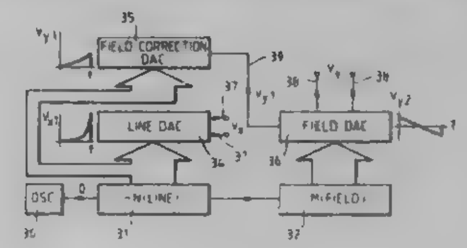
Continuation of Ser. No. 650,641, Sep. 14, 1984, abandoned. This application Sep. 16, 1987, Ser. No. 97,430

Claims priority, application United Kingdom, Sep. 15, 1983, 8324711

Int. Cl.⁴ H01J *29/70, 29/72, 29/56*

U.S. Cl. 315—367 **10 Claims**

1. A cathode ray tube (CRT) display systems including distortion correction means for the CRT including digital means arranged to drive digital to analogue converters (DAC's), in response, the DAC's being arranged to generate functions to shape the waveforms of deflection signals to be applied to the deflection plates of the CRT, the deflection signals to cause a conventional raster scan pattern coincident with the CRT screen, the digital means providing digital output signals, in response, the DAC's being arranged to generate the functions, each representative of variations of a corresponding analogue output from a DAC, the analogue output of a DAC, designated the Line DAC, being applied to the X deflection plates of the CRT, at least partially to cause each raster line scan, the analogue outut of a DAC, designated the Field DAC, being applied to the Y deflection plates of the CRT, the arrangement being such that the functions generated by the DAC's, and the waveforms of corresponding deflection signals to be applied to the deflection plates of the CRT, compensate for distortion, otherwise produced, of the raster scan pattern provided in relation to the screen, in each raster line scan period (t) the Line DAC being arranged to receive a first series of digital signals from the digital means, at a first constant repetition rate, in each raster frame scan period (T) the Field DAC being arranged to receive a second series of digital signals from the digital means, at a second repetition rate, there



being one of the series of digital signals supplied to the Field DAC in each raster line scan period (t), and

at least one further DAC, each such further DAC provided, considered individually, being arranged to receive one of the two series of digital series from the digital means, and, in response, is arranged to provide an analogue output over the associated period, the arrangement being such that the analogue output from said further DAC interacts with the manner of operation of another DAC, over the period associated with said other DAC, and different from the period associated with said further DAC, said other DAC being arranged to receive the other series of digital signals from the digital means, the combined function generated thereby, at the output of said other DAC, including the inverse of the function representing the distortion capable of being corrected by the output of said other DAC causing corresponding deflection signals to be applied to associated deflection plates, in one constituent pair of interacting DAC's said other DAC comprising one of the Line DAC and the Field DAC.

4,760,314
ROTATION CONTROLLER FOR A DIFFERENTIAL ACTUATOR

Naotake Mohri, 3837-3, Shimada Kuroishi, Tenpakucho Tenpaku-ku, Nagoya-shi, Aichi; Nagao Saito, Tokyo; Yoshihiko Yanai, and Kuniharu Miura, both of Aichi, all of Japan, assignors to Naotake Mohri, Aichi and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of, Japan

Filed Sep. 11, 1986, Ser. No. 905,963

Claims priority, application Japan, Oct. 11, 1985, 60-227231; Oct. 11, 1985, 60-227232

Int. Cl.⁴ H02P *7/573*

U.S. Cl. 318—78 **10 Claims**

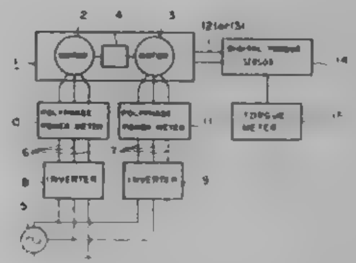
1. A rotation control apparatus used for a differential actuator having two induction motors and a differential mechanism driven by said motors for producing on an output shaft a constant torque at varying rotational speeds of said induction moors, said apparatus comprising two inverters having individual voltage vs. frequency output characteristics and connected respectively between said induction motors and a power source which supplies power to said induction motors;

wherein one of said two inverters provides a constant-frequency power to one of said induction motors and the other inverter provides a variable-frequency power to the other of said induction motors;

said apparatus controlling said differential actuator to produce a constant torque on the output shaft thereof at a differential speed between said induction motors at each variable frequency; and

a digital torque sensor attached to said output shaft of said differential actuator for measuring the output torque on said output shaft in a digital manner, said digital torque sensor having a measured value read out on a torque meter, torque control being implemented by setting a frequency of said variable-frequency inverter.

2. A differential actuator rotation control apparatus having two induction motors and a differential mechanism driven by said motors for producing an an output shaft a constant torque at varying rotational speeds of said induction motors, said apparatus comprising two inverters having individual voltage vs. frequency output characteristics and connected respectively between said induction motors and a power source which supplies power to said induction motors, and two polyphase power meters each connected between one of said inverters and a corresponding one of said motors, said polyphase power meters measuring power supplied to said respective induction motors.



3. A differential actuator rotation control apparatus having two induction motors and a differential mechanism driven by said motors for producing on an output shaft a constant torque at varying rotational speeds of said induction motors, said apparatus comprising two inverters having individual voltage vs. frequency output characteristics and connected respectively between said induction motors and a power source which supplies power to said induction motors, said two induction motors and said differential mechanism being constructed in an integral manner within a housing, said two inverters being connected to said motors to control the constant torque of said output shaft.

5. A differential actuator for producing a differential output from two induction motors and outputting a high torque driving force at low speed, each of said induction motors being connected to a power source by a corresponding one of two inverters, comprising:

(a) two axially-aligned induction motors arranged to be driven at selected rotational speeds;

(b) two aligned hollow input shafts, each of said induction motors being connected to a corresponding one of said hollow input shafts for driving said shafts;

(c) output shafts aligned with said induction motors and extending through said hollow input shafts and rotatable relative to said hollow input shafts; and

(d) differential means connecting said hollow input shafts and said output shafts.

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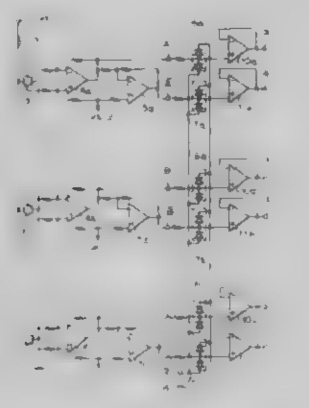
4,760,315

BRUSHLESS MOTOR DRIVE CIRCUIT

Youichi Nanae, Kanagawa, and Hideo Niikura, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 12, 1986, Ser. No. 906,502
Claims priority, application Japan, Sep. 20, 1985, 60-208148
Int. Cl.⁴ H02P *6/02*
U.S. Cl. 318—254 14 Claims



1. A brushless motor drive circuit comprising:

a plurality of Hall elements for detecting magnetic flux changes of a rotating rotor magnet of a multi-phase brushless motor and providing an output signal representative thereof;

a drive signal generating circuit connected to said Hall elements, including means for generating multi-phase drive signals to be supplied to stator windings of said multi-phase brushless motor, wherein each of said multi-phase drive signals has a pair of slanted edge portions and a relatively flat portion interposed between said pair of slanted edge portions, said drive signal generating circuit including means for directly forming said flat portion from said detected flux changes by selectively switching output signals from a pair of said Hall elements to define said flat portion; and

wherein said drive signal generating circuit includes non-adding mixing circuits connected to said Hall elements, buffer amplifier circuits, clamping circuits, analog switching circuits, and output amplifiers respectively connected in series.

14. A brushless motor drive circuit comprising:

a plurality of Hall elements for detecting magnetic flux changes of a rotor magnet of a multi-phase brushless motor and providing an output signal representative thereof;

multi-phase stator windings for said brushless motor, said multi-phase stator windings having a common connection; [illegible]

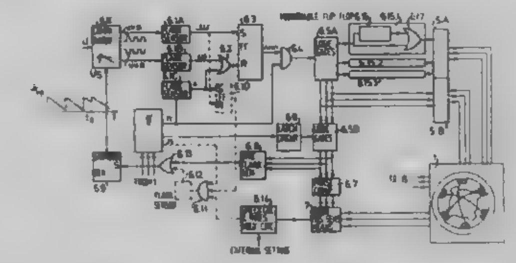
means for generating multi-phase drive signals to be supplied to said stator windings of said brushless motor, said drive signal generating means providing to each of said stator windings a drive signal which has a pair of electrically spaced slanted edge portions and a relatively flat portion interposed between said pair of slanted edge portions, said drive signal generating means including, for each of said multi-phase stator windings, circuit means for mixing output signals from a pair of adjacent Hall elements; means for selectively switching the respective output signals to define said relatively flat portion of said drive signals so that when said drive signals are applied to said stator winding, the magnitude of current in one stator winding is gradually increasing while the magnitude of current in another stator winding is gradually decreasing so that phase switching is performed gradually;

said drive signal generating means further including buffer amplifier circuits, clamping circuits, analog switching circuits, and output amplifiers respectively connected in series with each of said piar of adjacent Hall elements.

4,760,316

METHOD FOR CONTROLLING BRUSHLESS D.C. MOTORS AND APPARATUS FOR CARRYING OUT THE METHOD

Gunnar Hedlund, Stockholm, Sweden, assignor to EMS Electronic Motor Systems AB, Stockholm, Sweden
Filed Jun. 9, 1987, Ser. No. 60,014
Claims priority, application Sweden, Jun. 17, 1986, 8602693
Int. Cl.⁴ H02P *6/02, 5/17*
U.S. Cl. 318—254 11 Claims



7. In a system for controlling a brushless d.c. motor having at least two phase windings, said system comprising: a power unit for sending to the phase windings current pulses having a frequency and duration steered by driving pulses delivered to the power unit; a control unit for generating said driving pulses that are synchronized with the rotation of the rotor of said motor, said driving pulses having a frequency in relation with the speed of the motor, each of the driving pulses for each phase winding normally comprising two or more regularly occurring pulse-width-modulated chopped pulses followed by pulse pauses; sensing means for monitoring the motor current to detect a predetermined maximum current state in which the motor current has reached a highest value permitted for the prevailing point in time, said control unit having means for increasing the pulse-pause/pulse ratio during those chopped pulse periods within which the maximum current state is detected; the improvement in which said control unit comprises means for, upon detection of the maximum current state during the period of the chopped pulse, shortening the chopped pulse supplied to the power unit from a given first time point during the remainder of the chopped pulse period, irrespective of whether or not the state of maximum current ceases, and means for, subsequent to the detection of the maximum current state, generating a next following chopped pulse at the normal commencement of the next chopped pulse period if the maximum current state has ceased at this point in time, or delaying the generation of said next following chopped pulse to the time point at which the maximum current state ceases if the maximum current state still prevails at the beginning of the next chopped pulse period.

4,760,317

ELECTRICAL ARRANGEMENT FOR DRIVING A ROTARY TOOL FITTED IN A HANDPIECE

Max Hetzel, Deitingen, and Vincent Mosimann, Bienne, both of Switzerland, assignors to Bien-Air SA, Switzerland
Filed Jul. 22, 1987, Ser. No. 76,387
Claims priority, application Switzerland, Jul. 23, 1986, 2944/86
Int. Cl.⁴ H02P *6/02*
U.S. Cl. 318—254 12 Claims

1. An electrical arrangement for driving a rotary tool fitted in a handpiece comprising, external to the handpiece:

electrical supply means having an output, a source of d.c. voltage, a generator for supplying a high frequency voltage and means for superposing said high frequency voltage on said d.c. voltage and applying the resulting compound voltage to said output;

two deformable electric conductors, having one end thereof connected to said output; and further comprising, in said handpiece:

a multi-phase, brushless motor having a magnetized rotor arranged to rotate said tool;

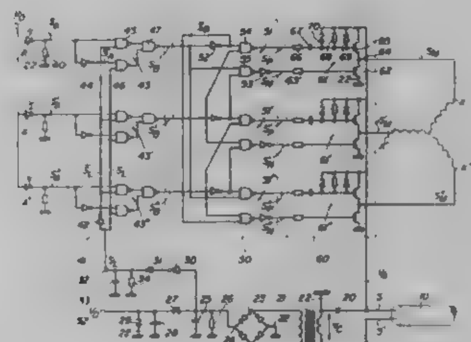
means connected to the other end of said two conductors to receive said compound voltage and for separating therefrom said d.c. voltage and said high frequency voltage;

sensor means controlled by said rotor and adapted to generate, during operation, logic signals that are representative of the rotor's angular positions;

a logic control circuit arranged to generate control signals in response to logic signals generated by the sensor means;

a drive circuit connected to the motor and arranged to receive said control signals and said d.c. voltage and to issue a multi-phase signal to the motor to cause its rotor to rotate; and

a rectifying circuit arranged to receive said high frequency voltage and to issue a d.c. voltage to the sensor means, to the logic control circuit and to the drive circuit.



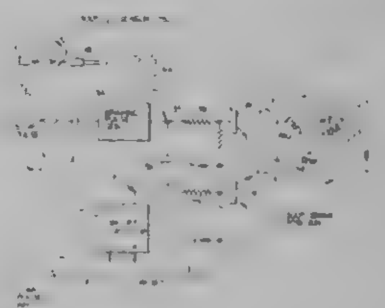
10. A rotary tool drive arrangement for use with a multi-phase brushless motor having a magnetized rotor, comprising: input means for receiving a compact voltage having a high frequency voltage component superposed on a d.c. Voltage and means for separating said high frequency voltage component from said d.c. voltage; motor rotor rotation responsive sensors adapted to generate during the motor operation logic signals that are representative of the rotor's angular position; logic control means for generating control signals in response to logic signals generated by the rotor sensors; drive circuit means connected to the terminals of the motor, for receiving control signals and the d.c. voltage from said separating means, and for issuing a multi-phase signal to the terminals of the motor to cause the motor rotor to rotate; and, rectifying circuit means for receiving the high frequency voltage from said separating means and for outputting a d.c. voltage to the rotor sensors, to the logic control means and to the drive circuit means.

4,760,318

INTERMITTENT SINGLE ROTATION MOTOR ACTUATOR

J. Paul Jones, Glenmore, Pa., assignor to Patent Research & Development Corp., Exton, Pa.
Filed Nov. 28, 1986, Ser. No. 917,005
Int. Cl.⁴ H02P *3/08;* H02K *13/00*
U.S. Cl. 318—362 3 Claims

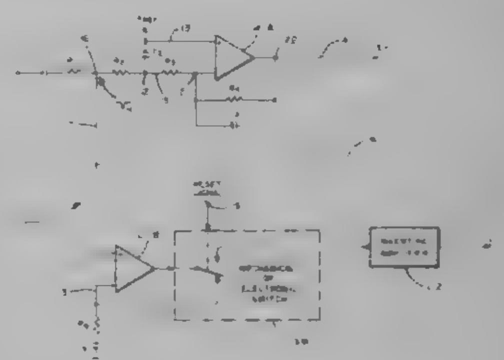
2. In a conventional three-pole D.C. motor having: (a) a pair of north and south field poles; (b) an armature including first, second, and third armature poles; (c) first, second, and third windings respectively on the armature poles; (d) three commutator plates; and (e) a pair of brushes, the improvement which comprises a third brush positioned at an angle substantially at 60° to one of said brushes and positioned to contact the commutator plates, the third brush being for use in stopping the rotation of the armature.



4,760,319

CIRCUIT FOR REMOVING UNWANTED SLOPE TRANSITIONS FROM AN INCOMING SIGNAL

Donald W. Janz, Oklahoma City, Okla., assignor to Magnetic Peripherals Inc., Minneapolis, Minn.
Filed Feb. 27, 1987, Ser. No. 20,209
Int. Cl.⁴ G05B *5/01*
U.S. Cl. 318—616 21 Claims



1. A circuit for removing unwanted temporal portions of a voltage varying signal current input thereto on the occurrence of a reset signal and for differentiating the resultant corrected signal with respect to a reference voltage provided by one of at least one reference voltage source wherein said circuit has:

switch means responsive to said reset signal having as a first input said reset signal and having a second input and having a first and second output, wherein said switch means in response to said reset signal diverts the second input to said second output from said first output and thence returns said second input connection to said first output,

input capacitor for receiving said input signal current,

op amp means having a positive and negative input, and an output connected to said second input of said switch, and having said positive input connected to receive voltage representative of the current through said input capacitor by being in electrical connection therewith,

storage capacitor means having one side connected to any reference voltage and having its other side in electrical connection to said op amp means' negative input and with said first switch output,

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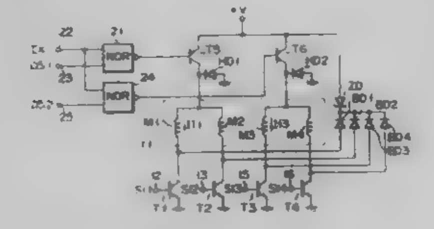
a first resistor,
a feedback resistor,
an inverting amplifier means connected to receive said second switch output, and
second op amp means for receiving the second switch output as a corrected input signal having:
  a negative input which is connected through the first resistor and through the inverting amplifier means to said second switch output and which negative input of said second op amp means is also in electrical connection through said first resistor with said input capacitor and with said positive input of said first op amp means,
  a positive input connected to a reference voltage,
  and which provides as output, said differentiated corrected signal, and this output is also connected via a feedback resistor to said negative input.

4,760,320

STEPPING-MOTOR DRIVING CIRCUIT

Kousuke Tsugita, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Mar. 20, 1987, Ser. No. 28,566
Claims priority, application Japan, Mar. 31, 1986, 61-72854
Int. Cl.⁴ H02P *8/00*
U.S. Cl. 318—696 **10 Claims**

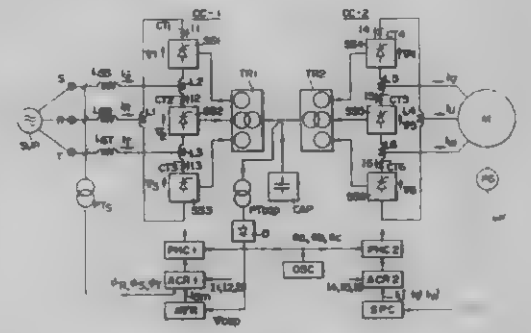


1. A stepping motor driving circuit for driving a stepping motor having a plurality excitation coils, comprising:
excitation-switching timing signal generating means for generating an excitation-switching timing signal to control the excitation switching of the plurality of excitation coils;
excitation-switching signal generatign means for generating a series of excitation-switching signals to switch the plurality of excitation coils, in synchronism with the excitation-switching timing signal generated from said excitation-switching timing signal generating means;
excitation coil selecting means for sequentially selecting the switching of the plurality of excitation coils in synchronism with said excitation-switching signals;
power supply means for providing excitation power to the plurality of exictation coils to be excited;
excitation control switching means, connected between said power supply means and the plurality of excitation coils, for coupling said excitation power to one of said plurality of excitation coils selected by said excitation coil selecting [illegible]
first pulse-generating means for generating, in synchronism with said excitation switching signal, a series of first pulse signals having pulse widths corresponding to a time period from the coupling of said excitation power to said selected excitation coil until the excitation current flowing through the excitation coil reaches a predetermined level;
second pulse-generating means for generating a second pulse signal train of a high-frequency wave, having a smaller pulse width than that of said series of first pulse signals, during a time period in which the generation of each of said series of first pulse signals is stopped; and
control means, connected to receive said series of first pulse signals and said second pulse signal train, for selectively turning said excitation control switching means on and off in accordance with said series of first pulse signals and said second pulse signal train.

4,760,321

AC MOTOR DRIVE APPARATUS

Shigeru Tanaka, Tokyo, and Susumu Tadakuma, Atsugi, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jul. 9, 1987, Ser. No. 71,395
Claims priority, application Japan, Jul. 14, 1986, 61-165028; Jul. 30, 1986, 61-179115
Int. Cl.⁴ H02P *5/28*
U.S. Cl. 318—809 **15 Claims**



1. An AC motor drive apparatus comprising:
a first cycloconverter having an output terminal coupled to an AC power source;
a second cycloconverter having an output terminal coupled to an AC motor;
a phase-advanced capacitor, coupled to input terminals of said first and second cycloconverters, for commutating said cycloconverters by an AC voltage charged therein; and
an external oscillator means for supplying a reference signal to said first and second cycloconverters, said reference signal being used for phase-controlled said first and second cycloconverters;
wherein at least one of said first and second cycloconverters is a circulating current type.

4,760,322

POWER-SUPPLY/BATTERY BACK-UP POWER SUPPLY/BATTERY CHARGER COMBINATION

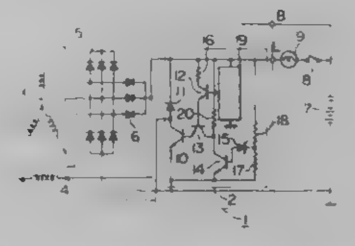
Timothy P. Crampton, Marietta, Ga., assignor to Applied Research & Technology, Inc., Atlanta, Ga.
Continuation of Ser. No. 769,358, Aug. 26, 1985, Pat. No. 4,672,293. This application Jan. 15, 1987, Ser. No. 3,649
Int. Cl.⁴ H02J *7/00, 9/00*
U.S. Cl. 320—14 **3 Claims**

1. A combination power supply—battery backup power supply—battery charger, comprising:
an AC power source, including a transformer means for providing a predetermined AC voltage;
a rectification means placed in an AC circuit with said AC power source for providing a unidirectional current in a DC branch within said AC circuit;
a regulating means positioned in said DC branch for providing a regulated DC output, said regulating means being characterized by a low input to output ratio such that the minimum allowable input voltage to said regulating means is less than or equal to the output voltage of said regulating means plus two volts;
a DC power source comprising a battery within said DC branch;
said battery being characterized by a discharge voltage which is less than or equal to the output voltage of said regulating means plus two volts; and
a battery charging circuit positioned in said unidirectional branch with said regulating means, said battery charging circuit comprising said battery within said circuit, said battery being further characterized by a charging voltage which is less than or equal to one hundred twenty-five percent (125%) of said battery discharge voltage,
whereby the voltage from the transformer means simultaneously serves as input voltage to the regulating means for supply to a load and as charging voltage to charge the battery with the charging circuit, and the battery provides voltage within defined limits as input voltage to the regulating means in the absence of power from the AC power [illegible]

4,760,323

VOLTAGE REGULATOR FOR GENERATOR

Keigo Naoi, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 22, 1985, Ser. No. 757,495
Claims priority, application Japan, Jul. 24, 1984, 59-153719
Int. Cl.⁴ H02P *9/00*
U.S. Cl. 322—33 **5 Claims**

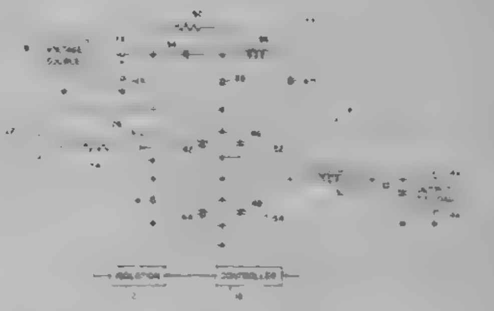


1. A control apparatus for controlling a charging generator of an automobile engine, comprising:
armature windings across which an alternating current output voltage is generated in response to rotation of the engine;
rectifier circuit means connected to said armature winding for rectifying the alternating current output voltage into a direct current voltage;
battery means for supplying electric energy and for being charged by the rectified output voltage of said armature windings through said rectifier circuit means;
field winding means for providing a magnetic field for said armature windings;
semiconductor switching means connected in series with said field winding means for intermittently interrupting an exciting current supplied to said field winding means;
voltage regulation means for sensing the rectified output voltage of said armature windings charging said battery and for providing a control signal to a control electrode of said semiconductor switching means so as to control the exciting current flowing into said field winding means through said semiconductor switching means;
means for detecting temperature at said voltage regulation [illegible]
means for generating a pulse train signal when the detected temperature is more than a preselected value, the conduction ratio of the pulse train signal varying in dependence on the temperature detected; and
means for controlling an on-off operation of said semiconductor switching means in accordance with the conduction ratio of the pulse train signal of said pulse train signal generating means in addition to the control signal generated by said voltage regulation means.

4,760,324

NON-DISSIPATIVE SNUBBER CIRCUIT FOR HIGH-EFFICIENCY SWITCHING POWER SUPPLIES

Mark J. Underhill, Marilla, N.Y., assignor to Raytheon Company, Lexington, Mass.
Filed Oct. 7, 1987, Ser. No. 105,418
Int. Cl.⁴ G05F *1/569*
U.S. Cl. 323—282 **9 Claims**

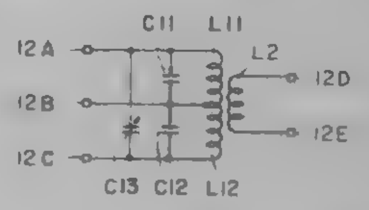


1. A switching power supply producing a regulated output voltage, said power supply comprising:
a switching transistor;
snubbing means for storing energy during the cut-off condition of said switching transistor; and
regulator means coupled to said snubbing means for receiving said stored energy during the saturation condition of said switching transistor, and for supplying a pair of oppositely poled voltages to drive said switching transistor between the saturation and cut-off conditions.

4,760,325

HIGH FREQUENCY COIL ARRANGEMENT

Masato Suzuki; Tatsushi Shinoda, and Hiromi Murakami, all of Tsurugashima, Japan, assignors to Toko Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 23, 1987, Ser. No. 41,528
Claims priority, application Japan, Apr. 28, 1986, 61-64438[U]
Int. Cl.⁴ H03J *3/20;* **H04B** *1/26*
U.S. Cl. 323—355 **3 Claims**



3. A high frequency coil arrangement, comprising an input side coil and an output side coil electromagnetically coupled with each other, said input side coil being divided into two coil elements having substantially equal inductances by provision of a tap, two parallel tuner capacitors respectively connected

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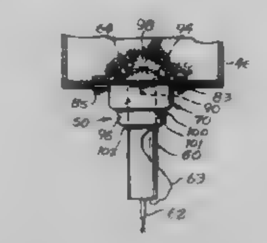
with said two coil elements for providing two tuner circuits of equal frequencies, and a further separate capacitor connected with both ends of said input side coil for adjustment of its tuning frequency, said separate capacitor being formed by electrodes arranged on opposing front and rear main surfaces of a substrate board, one of said electrodes having a plurality of finger-like projections, which can be cut off to provide a capacitance adjustment.

4,760,326
PROTECTIVE HOUSING AND MOUNTING APPARATUS FOR CAPACITIVE-TYPE PROXIMITY SENSOR

Charles R. Bird, Milford, Ind., assignor to CTB, Inc., Milford, Ind.

Filed Dec. 22, 1986, Ser. No. 944,934
Int. Cl.⁴ G01R *27/26;* H01G *7/00*
U.S. Cl. 324—61 P 9 Claims



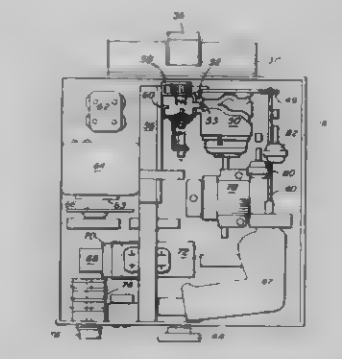
1. A protective housing and mounting apparatus for simultaneously protectively enclosing, and mounting to a given surface, a generally cylindrical capacitive-type proximity sensor having a substantially solid and unbroken external surface and an electrode member at one axial end thereof, said protective housing and mounting apparatus comprising: a one-piece integrally formed member of a durable, moldable plastics material, said member including an end surface configured for complementary mounting upon said given surface, a protective body portion extending from said end surface for surroundingly housing an end part of said generally cylindrical capacitive-type proximity sensor proximate said axial end thereof at which said electrode member is located; said body portion having a cylindrical open-ended bore therein for receiving said sensor end part, said bore extending to a point closely spaced behind said end surface; a quantity of conductive material covering substantially all external surfaces of the otherwise integrally formed, moldable plastic body portion and a predetermined portion of said end surface away from the periphery thereof, such that there is no continuity of electrically conductive material between said end surface and said body portion surfaces; and connecting means for establishing electrically conductive contact between the end surface conductive material-covered portion and said electrode of said sensor, such that said end surface portion defines an electrode of selected size and configuration for said sensor.

4,760,327
CABLE STATUS TESTING

Thomas D. Walsh, Braintree; Nicholas Reinhardt, Lexington, and James M. Feldman, Newton, all of Mass., assignors to Boston Edison Company, Boston, Mass.

Filed Nov. 10, 1986, Ser. No. 928,872
Int. Cl.⁴ G01R *31/02*
U.S. Cl. 324—66 11 Claims

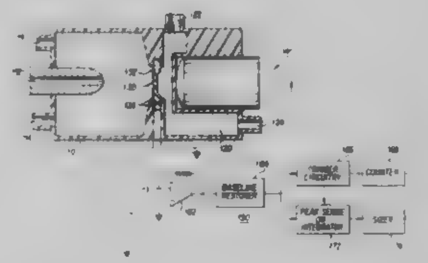
1. A method for determining the on/off status of a power distribution cable having a central conductor, an intermediate layer including at least a layer of resistive material surrounding said central conductor and an outer conductive sheath which comprises the steps of cutting and removing a plug from said sheath to expose an area of said layer of resistive material and testing between a surface of said area and said sheath to determine the presence or absence of a signal voltage of a predetermined frequency at said area.



4,760,328
PARTICLE COUNTER HAVING ELECTRODES AND CIRCUITRY MOUNTED ON THE PANE OF THE ORIFICE

Michael R. Groves, Flemington, N.J., assignor to Integrated Ionics, Inc., Dayton, N.J.

Filed May 5, 1986, Ser. No. 859,294
Int. Cl.⁴ G01N *27/00*
U.S. Cl. 324—71.4 9 Claims



1. A particle counter comprising:
an inlet chamber,
an outlet chamber insulated from said inlet chamber,
an orifice interconnecting the inlet and outlet chambers,
an electrode in each of the two chambers for establishing an electric current between the two chambers through a fluid that flows through the orifice, and
electronic circuitry for sensing changes in said current flow and/or an electronic field associated therewith,
characterized in that
said orifice is formed in a sheet of insulative material disposed between said first and second chambers,
at least a portion of said electronic circuitry is mounted on said sheet of insulative material, and is sealed from said fluid, and is connected to external signal processing circuitry; and
at least one of said electrodes is formed on a major surface of said sheet

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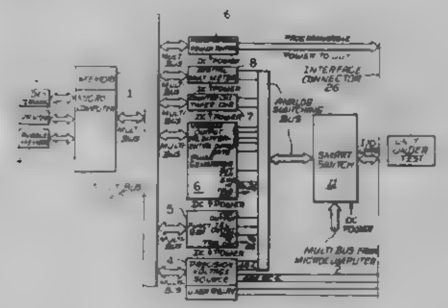
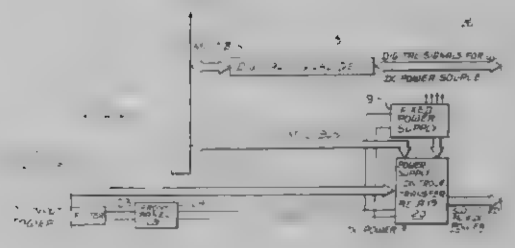
4,760,329
PROGRAMMABLE TESTER WITH BUBBLE MEMORY

Richard J. Andreano, East Northport, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Apr. 23, 1987, Ser. No. 41,572
Int. Cl.⁴ G01R *31/28*
U.S. Cl. 324—73 R 5 Claims



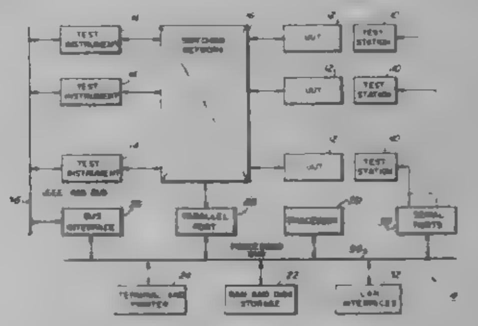


1. Programmable test apparatus comprising:
(a) connecting means for receiving interface means configured to adapt a unit under test to said test apparatus, said interface means cooperating with bubble memory means, the latter storing a plurality of test programs written in a high level language and converted to interpretive code format for selectively testing the operation of said unit under test;
(b) system bus means;
(c) microcomputer means operatively connected to said system bus means and including means for executing each test program;
(d) memory means associated with said microcomputer means operatively connected to said system bus means and including means for storing an interpreter program for interpreting the interpretive code format test program;
(e) programmable stimulus generating means operatively connected via said system bus means to said microcomputer means;
(f) programmable response measuring means operatively connected via said system bus means to said microcomputer means;
(g) switching means included in the stimulus generating and response measuring for selectively connecting said stimulus generating means and said response measuring means via said interface means to said unit under test, said switching means responsive to and operatively connected via a switching control bus means to said microprocessor control means;
(h) programmable digital signal generating means operatively connected via said system bus means to said microcomputer means and including means for effecting data communication directly via said interface means with said unit under test; and
(i) terminal means operatively connected to said microcomputer means for initiating execution of said test program and displaying the results thereof.

4,760,330
TEST SYSTEM WITH SHARED TEST INSTRUMENTS

Joseph L. Lias, Jr., Chamblee, Ga., assignor to Northern Telecom Limited, Montreal, Canada

Filed Jun. 6, 1986, Ser. No. 871,450
Int. Cl.⁴ G01R *31/28*
U.S. Cl. 324—73 R 6 Claims

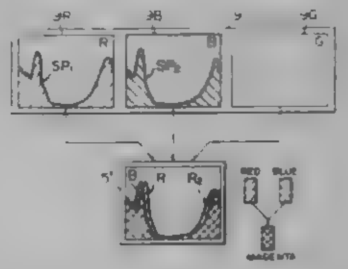


1. A test system for simultaneous testing of a plurality of units under test (UUTs), comprising:
a plurality of test stations each associated with a respective UUT;
processing means for communicating with each test station to execute a test program;
a plurality of programmable test instruments each coupled to the processing means to be programmed thereby; and
switching means controlled by the processing means for coupling at least one test instrument to a plurality of UUTs;
the test program for the UUTs serving to program the respective test instrument(s) and to control the switching means to couple said test instrument(s) to the respective UUTs for simultaneous testing thereof.

4,760,331
SPECTRUM DISPLAY DEVICE

Fumio Komuro, and Sadao Takahashi, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 14, 1981, Ser. No. 292,803
Claims priority, application Japan, Sep. 1, 1980, 55-119803
Int. Cl.⁴ G01R *13/20*
U.S. Cl. 324—121 R 14 Claims



1. A spectrum display device comprising a display surface, and means for displaying on said display surface a first spectrum in a first color and a second spectrum in a second color, respectively, in such a way that the first and second spectra are displayed in superposition with each other to form a composite display in which a mixed color is formed of the first and second

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colors in the area of said composite display where the first and second spectra are substantially equal to each other in intensity and substantially coincident with each other in position

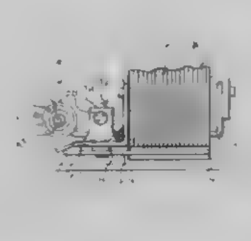
4,760,332
PHASE LAG AND LIGHT-LOAD ADJUST FOR VOLTAGE STATOR

Donald F. Bullock; Harold L. Stucker, both of Somersworth, and Ansell W. Palmer, Hampton, all of N.H., assignors to General Electric Company, Somersworth, N.H.

Filed Oct. 30, 1985, Ser. No. 793,124

Int. Cl.⁴ G01R *11/02*

U.S. Cl. 324—138 2 Claims



1. A light-load adjust for a voltage stator of a kilowatthour meter comprising:

a flange rigidly affixed to said voltage stator having a first threaded hole therein;
a light-load adjust plate;
means for permitting slidable motion of said light-load adjust plate with respect to said voltage stator;
a light-load adjust nut rigidly affixed to said light-load adjust plate and having a second threaded hole therein generally aligned with said first threaded hole;
said first and second threaded holes having substantially equal diameters and thread pitches;
resilient means biasing apart said flange and said light-load adjust nut;
a light-load adjustment screw having a shaft, a head and a threaded end;
said threaded end being selectively engageable with said first and second threaded holes;
said shaft having a diameter substantially smaller than a diameter of said threaded end;
said light-load adjustment screw being insertable into either end of said light-load adjust by threading said shaft completely through either one of said first and second threaded holes and into the other thereof, the smaller diameter of said shaft being effective to avoid interference with adjustment;
a spring finger having first and second ends;
means for rigidly affixing said first end to said voltage stator; and
means at said second end for resiliently bearing against an edge of said light-load adjust plate at an angle diagonal to a plane of said light load adjust plate, said diagonal angle being effective for displacing said light-load adjust plate in a transverse direction and for rotating said light load adjust plate with respect to said means for permitting slidable motion whereby adjustment backlash is avoided and a stable adjustment is attained.

4,760,333
CROSSED COIL METER HAVING CONCENTRICALLY WOUND MAGNETIC SHIELD

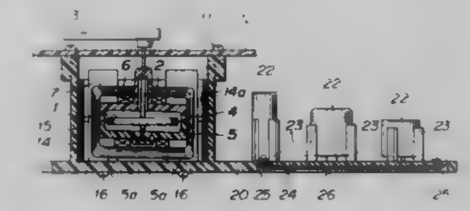
Etsuo Ichimura; Sakae Tsuyukubo, and Kouji Kurihara, all of Saitama, Japan, assignors to Kanto Seiki Co., Ltd., Omiya, Japan

Filed Nov. 6, 1985, Ser. No. 795,330

Claims priority, application Japan, Dec. 13, 1984, 59-189438[U]; Jan. 11, 1985, 60-2226[U]; Mar. 7, 1985, 60-32699[U]; Jun. 19, 1985, 60-92555[U]

Int. Cl.⁴ G01R *1/04*

U.S. Cl. 324—143 9 Claims



1. A meter comprising:

a magnet;
a shaft attached to said magnet for integral rotation;
a pointer attached to said shaft;
means for rotatably carrying said shaft;
a plurality of coils mounted on said rotatably carrying means and surrounding said magnet;
an outer body having a wall surrounding said plurality of coils, said wall defining a bore; and
a layered cylindrical insert comprising a strip plate of amorphous metal alloy concentrically wound a plurality of times about a common axis in a non-helical manner, such that each layer is concentrically disposed about, and substantially covers, a preceding layer, said insert being held in said bore in engagement with said wall of said outer body by the bending stress applied to the cylindrical insert and surrounding said plurality of coils.

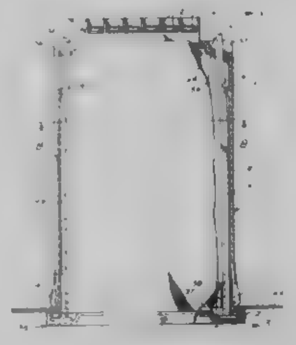
4,760,334
DIGITAL PANEL METER

Thomas Crowell, Dedham, and Brian Paulsen, Monument Beach, both of Mass., assignors to R. T. Engineering Service, Inc., Mansfield, Mass.

Filed Mar. 3, 1986, Ser. No. 835,653

Int. Cl.⁴ G01R *1/04*

U.S. Cl. 324—156 18 Claims



1. A digital panel meter adapted to be mounted in a panel and comprising:

a housing having an open front, side walls and means for securing the housing to said panel,
a circuit assembly adapted to be disposed inside the housing and including a digital display at the front of the circuit assembly,
a bezel adapted to cover the open front of the housing and including a cover means having means defining a window for viewing of said digital display and a pair of elongated bezel locking arms spacedly disposed in parallel and extending from said cover means toward the rear of the housing,
said housing having means defining spacedly disposed locking recesses,
said locking arms each having an end locking member adapted to interlock with the respective locking recess in the housing to secure the bezel cover means against the housing at the open front thereof,
at least one of said locking arm and housing sidewalls having a ramp means for maintaining an interlock between said locking arm and locking recess.

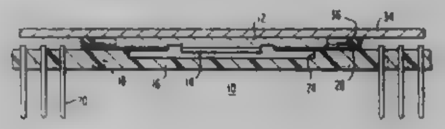
4,760,335
LARGE SCALE INTEGRATED CIRCUIT TEST SYSTEM

Frank A. Lindberg, Baltimore, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 30, 1985, Ser. No. 760,386

Int. Cl.⁴ H01R *13/62;* **G01R** *31/26*

U.S. Cl. 324—158 F 6 Claims



1. In combination, a large scale integrated circuit package which comprises:

a package substrate upon which is mounted an integrated circuit chip having a plurality of chip connection means extending therefrom which are aligned with and connected to a plurality of closely spaced peripherally extending substrate conductors disposed upon the package substrate;
an alignment and electrical connection means comprising a thin, planar, insulating, rectangular frame member which is generally coplanar with said package substrate, with a plurality of thin closely spaced package leads supported by and extending inwardly and outwardly from said rectangular frame member, with the inwardly extending package lead ends being aligned and matingly overlapped with said package substrate conductors, and with the outwardly extending package lead ends being aligned with and matingly overlapped with printed circuit conductors on a printed circuit board upon which said package substrate and said alignment and electrical connection means are mounted, with a plurality of alignment apertures provided in said alignment and electrical connection means;
said printed circuit board upon which said package substrate and alignment and electrical connection means are mounted includes a plurality of alignment pins extending toward and fitting within the alignment apertures of said connection means, which printed circuit board includes a pattern of printed circuit conductors disposed on the top surface of the board upon which said package substrate is mounted, which printed circuit board conductors extend inwardly toward a central printed circuit borad portion upon which said package substrate is mounted, with the printed circuit board conductors including peripherally extending portions which fan out to spaced-apart conductor connection posts which extend vertically through the printed circuit board extending from the underside of said printed circuit board for electrical connection of the chip package;
an elastomeric member disposed above the aligned and matingly overlapped printed circuit board conductors and said package leads;
and a cover plate means overlaying said package substrate upon said printed circuit board with means for mounting the cover plate upon said printed circuit board while compressing said elastomeric member to make electrical contact between said printed circuit board conductors and said substrate conductors through said package leads.

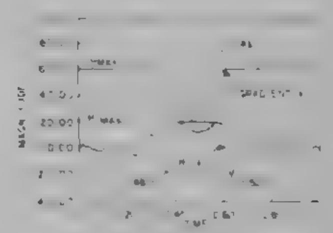
4,760,336
VARIABLE RATE MAGNETIC RESONANCE SELECTIVE EXCITATION FOR REDUCING RF POWER AND SPECIFIC ABSORPTION RATE

Steven M. Conolly, Stanford, Calif., assignor to Stanford University, Stanford, Calif.

Filed Feb. 27, 1987, Ser. No. 19,584

Int. Cl.⁴ G01R *33/20*

U.S. Cl. 324—309 8 Claims



1. For use in magnetic resonance imaging in which a subject is placed in a static magnetic field, a method of selectively exciting a portion of the subject comprising the steps of

applying a gradient magnetic field superimposed on said static magnetic field,
concurrently applying an RF magnetic field to the subject, said RF magnetic field having a peak amplitude,
reducing the peak amplitude portion of said RF magnetic field and the magnitude of said gradient magnetic field during said peak magnitude portion, and
increasing the incremental time duration of said RF magnetic field for the reduced peak amplitude portion.

4,760,337
NUCLEAR MAGNETIC RESONANCE METHODS AND APPARATUS

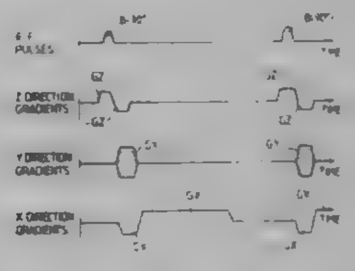
Ian R. Young, West Overton, Nr. Marlborough, United Kingdom, assignor to Picker International Ltd., Wembley, England

Filed May 13, 1987, Ser. No. 49,560

Claims priority, application United Kingdom, May 16, 1986, 8611963

Int. Cl.⁴ G01R *33/20*

U.S. Cl. 324—309 10 Claims



1. A nuclear magnetic resonance imaging method for imaging a region of a body wherein motion artifacts in the image obtained are reduced by component for variations due to movement of said body in the coupling between said body and means for applying an RF signal to said body to excite NMR

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in said region and/or the coupling between said body and means for detecting NMR in said region.

4,760,338
MAGNETIC RESONANCE IMAGING APPARATUS AND METHOD UTILIZING A COMPOSITE RF PULSE

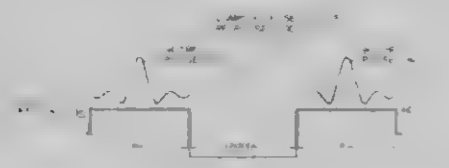
Katzumi Kose, Tokyo, and Kozo Satoh, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 26, 1986, Ser. No. 878,783

Claims priority, application Japan, Jun. 29, 1985, 60-143722

Int. Cl.⁴ G01R *33/20*

U.S. Cl. 324—309 6 Claims



1. An imaging apparatus for producing a twodimensional image of an object under medical examination by nuclear magnetic resonance, comprising:

first field means for applying a static magnetic field to said object;

second field means for applying to said object a first magnetic field gradient that, in conjunction with said static magnetic field, defines a slice of said object, and for applying to said slice a second magnetic field gradient so as to produce positional information on nuclear magnetic resonance signals,

means for producing a first 90° RF pulse and a composite selective RF pulse as a series of RF pulses, said composite selective RF pulse including second and third 90° RF pulses having the same pulse shape and pulse duration;

probe head coil means for applying said series of RF pulses to at least said slice so as to excite specified nuclei therein, and for detecting the nuclear magnetic resonance signals derived from said slice; and

means for controlling an application sequence of said series of RF pulses so as to apply said composite selective RF pulse after said first 90° RF pulse has been applied to said slice, said means firstly applying said second 90° RF pulse to said slice under a first polarity of said first field gradient and secondly applying said third 90° pulse to the same under said first polarity of said first gradient after a time interval under a second polarity of said first field gradient, opposite to said first polarity thereof, an integration value of said first field gradient being a predetermined value with reference to said time interval, and for reconstructing the two-dimensional image of the spatial distribution of the specified nuclei within said slice

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4,760,339
NMR IMAGING METHOD

Etsuji Yamamoto, Akishima; Koichi Sano, Sagamihara; Hidemi Shiono, Akikawa, and Hideki Kohno, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 22, 1986, Ser. No. 944,001

Claims priority, application Japan, Dec. 23, 1985, 60-287735

Int. Cl.⁴ G01R *33/20*

U.S. Cl. 324—309 7 Claims

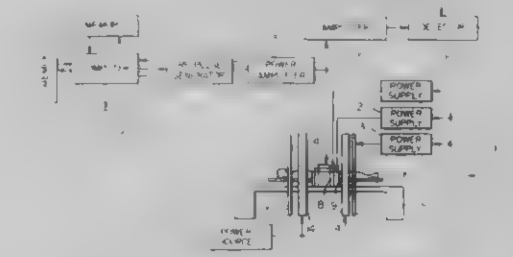
1. An NMR imaging method for an NMR imaging apparatus for obtaining that spin density distribution in an object which corresponds to each of a plurality of chemical shifts generated by the object, comprising the steps of:

measuring the object in accordance with a pulse sequence capable of expressing a difference between two of the chemical shifts in phases of signals, wherein each of the signals includes a position-independent offset phase which is peculiar to the NMR imaging apparatus and which is desired to be eliminated;

reconstructing spin distribution data from the signals, each of the distribution data including a real part and an imaginary part;

calculating respective phases of the spin distribution data from the real part and imaginary part;

forming a histogram from the calculated phases of the spin distribution data, the histogram being function of frequency and the phases of the spin distribution data;



selecting a phase corresponding to that one of a plurality of peaks of the histogram which exits at one end of the histogram, as the position-independent offset phase;

correcting the spin distribution data in such a manner that the position-independent offset phase is eliminated from the spin distribution data; and

extracting spin distribution data for each of the chemical shifts, from the corrected spin distribution data

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4,760,340
MEASURING AND EVALUATING SURFACE POTENTIALS FOR DETERMINING THE BOUNDARIES OF UNDERGROUND RESERVOIRS

Helmut Denzau, and Joachim Hollinderbäumer, both of Essen, Fed. Rep. of Germany, assignors to Pipeline Engineering Gesellschaft fur Planung, Bau- und Betriebsuberwachung von Fernleitungen mbH, Essen, Fed. Rep. of Germany

Filed Aug. 13, 1986, Ser. No. 896,445

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1985, 3529466

Int. Cl.⁴ G01V *3/38*

U.S. Cl. 324—348 15 Claims

1. A method of determining the locations of the hydrocarbon/water interfaces in an underground reservoir containing hydrocarbon compounds and more particularly gas or oil, the approximate locations of said interfaces being known, said method comprising the steps of:

laying at least one string of measuring probes comprising a plurality of measuring probes suitable for the measurement of surface potentials, said probes being linearly spaced relative to each other and being arranged such that at least two probes of said plurality of measuring probes are located outside and at least two other probes of said plurality of measuring probes are located inside the area of the surface over said reservoir;

measuring and polling the potentials measured by each such probe; sorting said probes, by using low and high potentials so polled, into probes (a) located positively over said reservoir, (b) positively not located over said reservoir and (c) located in an intermediate area;

computing an average value of potential from the potentials measured by each probe so located outside said area of the surface over said reservoir;

determining a step function from the average value of potential for every probe so located inside said area of the surface over said reservoir, with subintervals of said step function being related to the distances between said probes;

smoothing said step function and forming a smoothed function having a slope corresponding to the slope of said step function;

forming a linear function representing the average of all average values of potential computed for all probes so located positively outside said area of the surface over said reservoir;

prolonging the curve representing said linear function in the direction of said reservoir and determining the point of intersection between the curve so prolonged and the curve representing said smoothed function; and

taking said point of intersection to be the location of a hydrocarbon/water interface in said reservoir.

4,760,341
METHOD AND APPARATUS FOR MONITORING OPERATION OF A SPARK IGNITION DEVICE IN A GAS TURBINE ENGINE

Robert C. Skerritt, Nuneaton, England, assignor to Lucas Industries Public Limited Company, Birmingham

Filed Oct. 29, 1986, Ser. No. 924,321

Claims priority, application United Kingdom, Nov. 27, 1985, [illegible]

Int. Cl.⁴ F02P *17/00*

U.S. Cl. 324—379 6 Claims

1. A method of monitoring operation of a spark ignition device in a gas turbine engine, comprising detecting the magnitude of an electric field in said device, generating a first indicating signal if the duration of an input voltage applied to said device does not exceed a predetermined value, generating a second indicating signal if the magnitude of said input voltage is not less than a predetermined value, and generating an output signal only in the presence of said first and second signals.

4,760,342
ELECTROSTATIC INDUCTION PROBE ARRANGEMENT USING SEVERAL PROBES

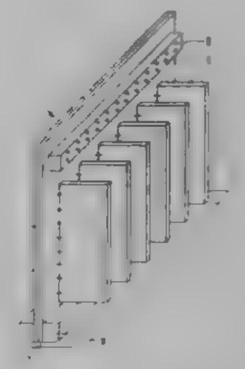
Josef N. Conrads, Hauset, Belgium; Walter Hillen, Aachen, Fed. Rep. of Germany; Peter Quadflieg, Aachen, Fed. Rep. of Germany, and Ulrich Schiebel, Aachen, Fed. Rep. of Germany, assignors to U.S. Philips Corp., New York, N.Y.

Filed Feb. 14, 1986, Ser. No. 829,576

Claims priority, application Fed. Rep. of Germany, Feb. 19, [illegible]

Int. Cl.⁴ G01N *27/60;* **G01R** *29/12*

U.S. Cl. 324—457 16 Claims



1. Electrostatic induction probe arrangement for determining the charge distribution on an electrically charged surface with several electrostatic induction probes, each of which has a probe electrode surrounded by a screen electrode and which are mounted on a substrate arrangement,

characterized in that the probe electrode (7) and the screen electrodes (8) are disposed on an end face (4) of the substrate arrangement (3) such that the substrate arrangement is provided in a first plane (6), which is at least approximately perpendicular to the end face, with a signal-conducting path (12) having the potential of the probe electrode (7), and carries in two planes at each side of the first plane and parallel to it, screening paths (13) which are electrically conducting and connected to the screen electrodes (8).

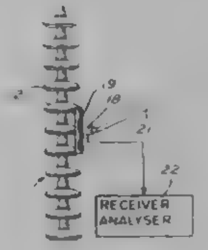
4,760,343
APPARATUS FOR DETECTING DEFECTIVE INSULATORS IN AN INSULATING COLUMN SUPPORTING AN ELECTRICAL CONDUCTOR IN A POWER CIRCUIT LINE

Georges H. Vaillancourt, Beloeil, and Farouk Rizk, St-Lambert, both of Canada, assignors to Hydro-Quebec, Montreal, Canada

Filed Mar. 17, 1986, Ser. No. 843,491

Int. Cl.⁴ G01R *29/12, 19/00;* **G01N** *31/02*

U.S. Cl. 324—552 25 Claims



1. A method of detecting, without making electrical contact, defective insulators in an insulating column comprised of a

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plurality of serially connected insulators for supporting an electrical conductor in a power transmission line, said column being surrounded by an electric field caused by the voltage present on said conductor; said method comprising the steps of:

(i) displacing an electric field probe along an axis substantially parallel to the longitudinal axis of said column,

(ii) effecting measurement of the electric field surrounding said column to detect discontinuities in this field that are caused by the presence of faulty insulators within said column, and

(iii) interpreting measured field values to identify faulty insulators in said column.

4,760,344

PHASE SHIFT KEYING SIGNAL DEMODULATION METHOD AND APPARATUS

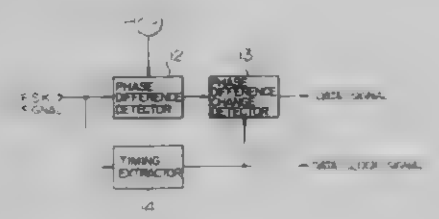
Akihiko Takase, Tokyo, and Kenji Ochiai, Kokubunji, both of Japan, assignors to Hitachi, Ltd. and Hitachi Communication System, both of Tokyo, Japan

Filed Feb. 9, 1987, Ser. No. 12,612

Claims priority, application Japan, Feb. 7, 1986, 61-23800

Int. Cl.⁴ H03D *3/18*

U.S. Cl. 329—50 11 Claims



1. A demodulator for demodulating a phase shift keying signal to regenerate a data signal, said demodulator comprising:

means for generating a clock signal asynchronous with a carrier frequency of said phase shift keying signal;

means for detecting a phase difference between said clock signal and said phase shift keying signal;

means for detecting a change in said phase difference; and

means for producing the data signal of the basis of the detected change in said phase difference

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4,760,345

CHARGE AMPLIFIER CIRCUIT

Bruno Büsser, Schwerzenbach, and Leo Amstutz, Neftenbach, both of Switzerland, assignors to Kistler Instrumente Aktiengesellschaft, Winterthur, Switzerland

Filed May 5, 1987, Ser. No. 46,149

Claims priority, application European Pat. Off., Jul. 18, 1986, 86109912.5

Int. Cl.⁴ H03F *1/08*

U.S. Cl. 330—9 5 Claims

1. A charge amplifier circuit having an input and output comprising:

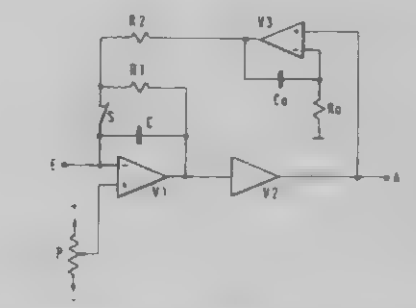
an operational amplifier having inverting input connected to said charge amplifier circuit's input and an output coupled to said charge amplifier circuit's output;

an integrating capacitor connected between said inverting input and an output of said operational amplifier;

a bypass resistor connected at a first end to a first side of said integrating capacitor;

a correction amplifier means having an input connected to said charge amplifier circuit's output; and

resetting means for connecting a second end of said bypass resistor to a second side of said integrating capacitor to discharge said integrating capacitor means and connecting an output of said correction amplifier to said inverting input of said operational amplifier to automatically supply a correction charge to said integrating capacitor when said resetting means is activated to compensate circuit output voltage when said resetting means is deactivated



4,760,346

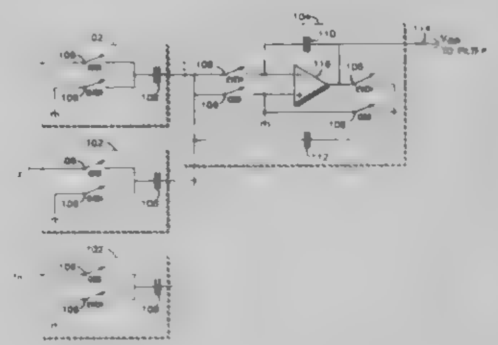
SWITCHED CAPACITOR SUMMING AMPLIFIER

Michael A. Kulgen, Bedford, and Danny T. Pinckley, Arlington, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 30, 1986, Ser. No. 913,424

Int. Cl.⁴ H03F *1/00*

U.S. Cl. 330—69 14 Claims



1. A switched capacitor summing amplifier, comprising:

means for generating a first and second sampling signal being of complementary phase;

at least one amplifier stage, coupled to said generating means, said at least one amplifier stage having an input port and an output port;

at least one input stage, coupled to said generating means, said at least one input stage having an input port and an output port;

means for removably coupling said output port of any of said input stages to said input port of said amplifier stage in response to a control signal; and

means for providing said control signal synchronized to at least one of said first and second sampling signals

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4,760,347

CONTROLLED-OUTPUT AMPLIFIER AND POWER DETECTOR THEREFOR

Clement H. Li, and Ronald P. Green, both of Calgary, Canada, assignors to NovAtel Communications Ltd., Calgary, Canada

Filed Jan. 20, 1987, Ser. No. 4,672

Int. Cl.⁴ H03G *3/20*

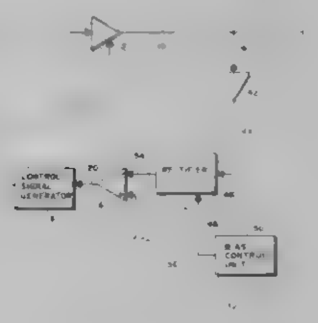
U.S. Cl. 330—127 4 Claims

1. A controlled-output amplifier having an input and an output, said input for receiving a preselected input signal, said output for producing an output signal having a substantially constant predetermined magnitude, said amplifier comprising

controllable-gain amplifier means having first and second inputs and an output, said first input adapted to receive said reselected input signal, said second input adapted to receive a gain control signal, said output providing the output signal of said controlled-output amplifier;

rectifier means having an input and an output, said input coupled to the output of said controllable-gain amplifier means, said rectifier means producing at said output a signal indicative of the magnitude of the output signal of said controlled-output amplifier;

bias control means having an input and an output, said input adapted to receive a bias control signal, said output coupled to the rectifier means, said control means biasing said rectifier means in one of a plurality of predetermined bias states in response to said bias control signal;



comparison means having first and second inputs and an output, said first input coupled to the output of said rectifier means, said second input adapted to receive a reference signal, said comparison means producing a signal at said output which is indicative of the difference in magnitude of the reference signal and the signal produced at the output of said rectifier means; and

control signal generator means having an input and an output, said input coupled to the output of said comparison means, said output coupled to the second input of the controllable-gain amplifier means, said generator means producing the gain control signal in response to the signal produced at the output of the comparison means, whereby the gain of the controllable-gain amplifier means is adjusted so as to maintain the output signal of the controlled-output amplifier at the predetermined magnitude.

4,760,348

BROADBAND IN-LINE AMPLIFIER FOR SUBMARINE ANTENNAS

Brian L. Pease; Raymond J. Phillips, both of Oakdale, and Anthony R. Susi, Waterford, all of Conn., assignors to The United States of America as represented by the Secretary of the Navy

Filed Apr. 2, 1987, Ser. No. 33,278

Int. Cl.⁴ H03F *1/00*; H01Q *1/34*

U.S. Cl. 330—151 1 Claim

1. A broadband in-line amplifier comprising:

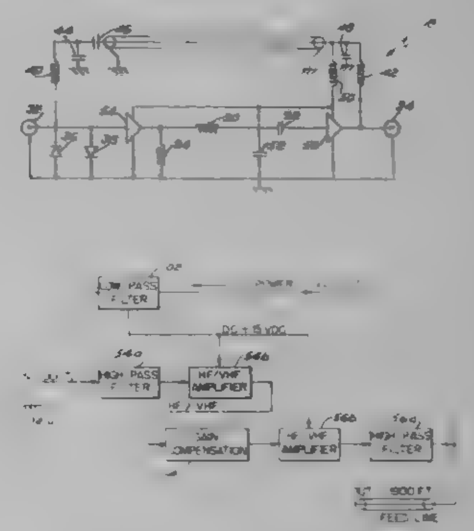
an input terminal;

an output terminal;

a low pass filter loop connected to said input terminal for receiving signals, said low pass filter loop having means for conducting received signals of a frequency between 10 kHz–200 kHz to said output terminal and inhibiting higher frequency signals;

said low pass filter loop further comprises a low pass filter including a single T section having a pair of series inductors and a first capacitor connected between said series inductors and ground, a second capacitor, being a d.c. blocking capacitor, connected in series between said inductors, and a third capacitor connected between said series inductors and ground for attenuating VHF signals;

a high frequency amplification loop connected to said input terminal for receiving signals, said high frequency amplification loop having means for amplifying received signals of a frequency between 2 MHz–160 MHz and conducting the amplified signals to said output terminal, and inhibiting lower frequency signals; and



said high frequency amplification loop further comprises a first amplifier having a high pass filter at its input and an HF/VHF amplifier, a second amplifier having an HF/VHF amplifier and a high pass filter at the output of said second amplifier, and a gain compensator located between said first and second amplifier.

4,760,349

CMOS ANALOG STANDARD CELL ARRAYS USING LINEAR TRANSCONDUCTANCE ELEMENTS

Chin-Sup Park, St. Paul, and Rolf Schaumann, Minnetonka, both of Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Aug. 19, 1986, Ser. No. 898,181

Int. Cl.⁴ H03F *3/26*

U.S. Cl. 330—264 24 Claims

1. A linear voltage to current transducer, comprising:

a first composite transistor including a first n-type field effect transistor having gate, drain and source terminals, and a first p-type field effect transistor having gate, drain and source terminals, and having the source terminal of said first n-type transistor connected to the source terminal of said first p-type transistor;

a second composite transistor including a second n-type field effect transistor having gate, drain and source terminals, and a second p-type field effect transistor having gate, drain and source terminals, and having the source terminal

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of said second n-type transistor connected to the source terminal of said second p-type transistor;

said second n-type transistor being matched to said first n-type transistor and said second p-type transistor being matched to said first p-type transistor;

signal output connected to one of the gate terminals of said first composite transistor and further connected to one of the gate terminals of said second composite transistor;

first tuning voltage means connected to the other one of said gate terminals of said first composite transistor and second tuning voltage means connected to the other one of said gate terminals of said second composite transistor for biasing the n-type and p-type transistors in constant saturation, for biasing the transducer into linear operation and for controlling the gain of the transducer; and

output terminal connected to the drain terminal of said first p-channel transistor and further connected to the drain terminal of said second n-channel transistor for supplying the output current difference between said first and second composite transistors so that the current difference is linearly proportional to the amount of a large-signal input voltage placed on said signal input.

4,760,350

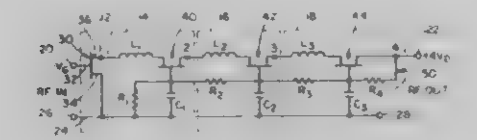
INTERNALLY MATCHED POWER AMPLIFIER

Yalcin Ayasli, Lexington, Mass., assignor to Hittite Microwave Corporation, Woburn, Mass.

Filed Jun. 8, 1987, Ser. No. 59,530

Int. Cl.⁴ H03F *3/16*

U.S. Cl. 330—277 14 Claims



1. An internally matched power amplifier comprising

an input terminal for receiving an input signal and an output terminal for connection to a d.c. power source;

a first semiconductor device having its control electrode coupled to said input terminal and its first load electrode connected to a common conductor, said control electrode having a predetermined d.c. bias level and a predetermined signal voltage level relative to said first load electrode;

a second semiconductor device having its second load electrode coupled to said output terminal;

transmission means connected in series between the second load electrode of the first device and first load electrode of the second device for establishing an internal impedance match;

capacitance means coupled between the common conductor and the control electrode of the second device for setting the signal voltage level between the control electrode and first load electrode of the second device to the predetermined signal voltage level of said first device; and

voltage divider means coupled between the output terminal and the common conductor and connected to the control electrode of the second device for setting the d.c. bias level between the control electrode and first load electrode of the second device to the predetermined d.c. bias level of said first device.

4,760,351

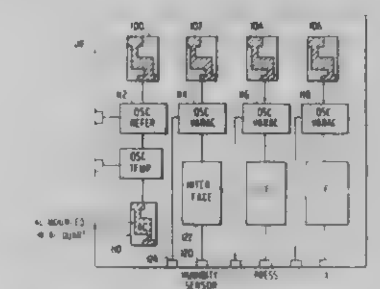
MULTIPLE OSCILLATOR DEVICE HAVING PLURAL QUARTZ RESONATORS IN A COMMON QUARTZ SUBSTRATE

Darrell E. Newell, DeKalb; Alan P. Genis, Sycamore; Gregg Westberg, and Susan M. Nemes, both of DeKalb, all of Ill., assignors to Northern Illinois University, DeKalb, Ill.

Filed Aug. 22, 1986, Ser. No. 899,360

Int. Cl.⁴ G01N *27/00*; H03B *5/32*

U.S. Cl. 331—48 14 Claims



5. A multiple oscillator device of the type comprising a crystal substrate, a plurality of crystal oscillators each providing an output and signal processing means for processing outputs from said oscillators to obtain a desired output signal, each of said oscillators including a respective crystal resonator having a respective resonant frequency, the crystal resonators of said plurality of oscillators each being formed at the same time in said substrate, said device including isolation means in the form of a gap in said substrate between adjacent resonators for decreasing the capability of said substrate to propagate frequencies in a range which includes the resonant frequencies of said resonators while maintaining common structural support of all of said resonators by said substrate.

4,760,352

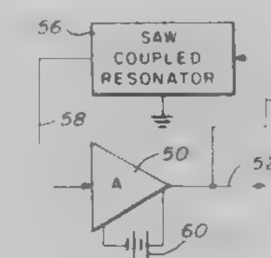
COUPLED RESONATOR PHASE SHIFT OSCILLATOR

Darrell L. Ash, Sachse, Tex., assignor to R.F. Monolithics, Dallas, Tex.

Filed Sep. 4, 1987, Ser. No. 93,292

Int. Cl.⁴ H03B *5/24*

U.S. Cl. 331—107 A 11 Claims



1. A coupled resonator phase shift oscillator comprising

a. an amplifier having an input and an output and a predetermined phase shift between said input and output,

b. a surface acoustic wave coupled resonator having.

i. an input and an output,

ii. a frequency response curve passing through 3 dB points; and

iii. a phase shift occurring between the 3 dB points which, when added to said amplifier phase shift, causes oscillation, and

c. means for connecting the output of said amplifier as an input to said coupled resonator and the output of said coupled resonator as the input of said amplifier to form an inductorless phase shift oscillator.

4,760,353

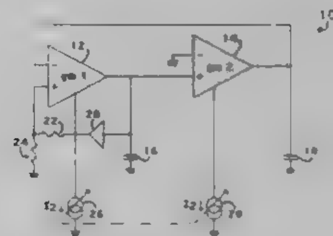
INTEGRATED GYRATOR OSCILLATOR

Geoffrey W. Perkins, Chandler, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 4, 1988, Ser. No. 140,376

Int. Cl.⁴ H03B *5/00*

U.S. Cl. 331—132 1 Claim



1. An oscillator, comprising:

a first current source for supplying a controlled current;

a first transconductance stage being operated to provide a negative transconductance and having an inverting input, a non-inverting input, a control input, and an output, said control input being coupled to said first current source;

first capacitive means coupled to said output of said first transconductance stage;

a second transconductance stage having an inverting input, a non-inverting input, a control input, and an output, said control input being coupled to said first current source, said output being coupled to said inverting input of said first transconductance stage, said non-inverting input being coupled to said output of said first transconductance stage and said inverting input being coupled to ground potential;

a second capacitive means coupled to said output of said second transconductance stage; and

feedback circuit means for providing a feedback signal from said output of said first transconductance stage to said non-inverting input thereof.

4,760,354

SSB PULSE MODULATOR

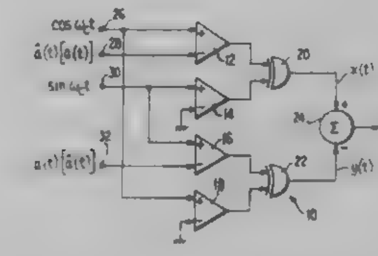
Kaveh Kianush, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 26, 1986, Ser. No. 884,049

Claims priority, application United Kingdom, Mar. 27, 1985, 8508016

Int. Cl.⁴ H03C *1/60*

U.S. Cl. 332—9 R 5 Claims



1. A method of producing an SSB signal comprising applying first and second quadrature-related components of a carrier signal to first and second pairs of comparators, the first component being applied to one comparator of each pair and the second component being applied to the other comparator of each pair, applying a modulating signal and the Hilbert transform thereof respectively to a said comparator to which the first component is applied and to a said comparator to which the second component is applied, multiplying together the outputs of the comparators of each pair and combining the products so obtained to produce an SSB signal in which strong even harmonics of the carrier signal have been attenuated relative to the levels thereof which would have been obtained had only one pair of comparators been employed.

4,760,355

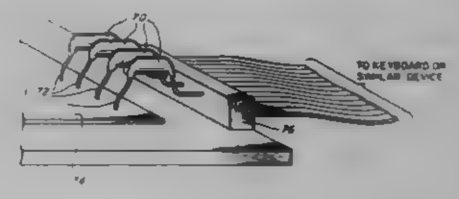
ELECTROMAGNETIC EMISSION CONTROL SYSTEM

Glen Dash, 16 Pierce Rd., Watertown, Mass. 02172, and Isidor Straus, 8 Longfellow Rd., Wayland, Mass. 01778

Filed Nov. 4, 1985, Ser. No. 794,836

Int. Cl.⁴ H03H *7/06*

U.S. Cl. 333—12 6 Claims



1. In a data processing system having signal cable conductor means associated therewith for carrying electrical signals between components comprising the system, the improvement comprising a ferrite sleeve disposed over at least a partial length of the signal cable conductor means, said ferrite sleeve dimensioned to have an impedance at the operating frequency greater than the signal cable conductor means radiation resistance, thus establishing a voltage divider circuit between the impedance of the ferrite sleeve and the radiation resistance, to thus reduce emissions due to common mode noises, said ferrite sleeve having a length of at least 1.5 inches, said ferrite sleeve having a substantially centrally disposed hole therethrough and having a ratio of outside to inside diameter of on the order of 2.5 to 1 so as to provide an impedance of approximately 150 ohms at 100 MHz, said ferrite sleeve providing a reduction in emissions on the order of at least 10 dB.

4,760,356

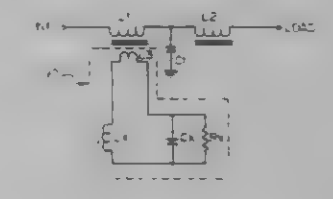
POWER LINE FILTER

Robert W. Kempster, Ottawa, Canada, assignor to Leigh Instruments Limited, Ottawa, Canada

Filed Apr. 15, 1986, Ser. No. 852,325

Int. Cl.⁴ H03H *7/09, 7/06*

U.S. Cl. 333—177 8 Claims



1. In a power line filter which includes a first discrete lumped parameter capacitive element having a predetermined value of capacitance and connected between the power line and a source of ground potential and a first inductive element in series with the power line, the improvement comprising:

a coil, having two terminals and inductively closely coupled to said first inductive element; and

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a damping network connected across said two coil terminals, including, in series, a second inductive element and a parallel circuit having a second capacitive element in one branch and a resistive element in another branch

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4,760,357

NOISE FILTER WITH INLET SOCKET

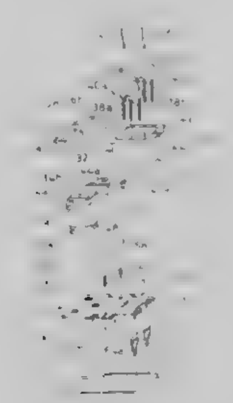
Kouichi Yamaguchi, Nagaokakyo, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Oct. 15, 1986, Ser. No. 919,049

Claims priority, application Japan, Oct. 16, 1985, 60-158293[U]; Oct. 16, 1985, 60-158294[U]

Int. Cl.⁴ H03H *7/00*

U.S. Cl. 333—181 7 Claims



1. A noise filter which has an inlet socket and is directly groundable to a chassis, comprising:

an inlet socket;

a filter element having an earth portion to be grounded and a signal-carrying portion not to be grounded;

a metal member having a first portion for accommodating said inlet socket and a second portion for accommodating said filter element, said second portion being formed as a case having a bottom plate to which said earth portion of said filter element is connected, and through which said signal-carrying portion of said filter element is passed without contacting said bottom plate; and

a printed circuit board for interconnecting said filter element and said inlet socket, having a first portion corresponding to said first portion of said metal member and for being electrically connected and mounted to said inlet socket, and a second portion corresponding to said second portion of said metal member and for being mounted to said filter element, said signal-carrying portion of said filter element being connected to said second portion of said printed circuit board

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4,760,358

PIEZOELECTRIC ELEMENT

Jiro Inoue, Kanazawa, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Aug. 6, 1986, Ser. No. 893,937

Claims priority, application Japan, Aug. 7, 1985, 60-174682; Nov. 19, 1985, 60-260721

Int. Cl.⁴ H03H *9/15, 9/13, 9/205*

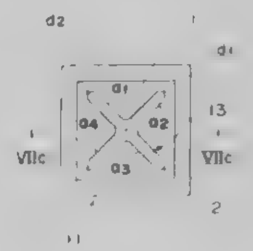
U.S. Cl. 333—187 15 Claims

1. A three-terminal expansion mode piezoelectric filter element comprising:

a quadrilateral piezoelectric plate having first and second surfaces; and means for inducing expansion mode vibration in said piezoelectric plate, said means comprising

a rim electrode deposited on said first surface along at least part of the periphery of said piezoelectric plate;

a center electrode deposited on said first surface in an area within said rim electrode, said center electrode having a central portion and at least two arms extending from said central portion in opposite directions along at least one diagonal of said piezoelectric plate; and



a ground electrode deposited on said second surface of said piezoelectric plate;

said rim and center electrodes being insertable in a signal transmission line and said ground electrode being connectable to ground for inducing said expansion mode vibration

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4,760,359

SURFACE ACOUSTIC WAVE RESONATOR

Takashi Shiba, Yokosuka; Norio Hosaka, Yokohama; Takemitsu Buma, Yokohama, and Jun Yamada, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 6, 1987, Ser. No. 763

Claims priority, **application Japan, Jan. 10, 1986, 61-2037**

Int. Cl.⁴ H03H *9/25*

U.S. Cl. 333—194 2 Claims

1. In a surface acoustic wave resonator comprising two solid-type interdigital transducers having a number of electrode pairs and two grating reflectors arranged on a piezoelectric substrate or on a surface acoustic wave substrate which contains a piezoelectric material, the grating reflectors being arranged on the outside of said transducers, the improvement comprising providing the interdigital transducers with a number of electrode pairs Ni which satisfies the relation

$$N_i \quad \frac{\pi}{\epsilon}$$

wherein ε denotes a characteristic mechanical impedance mismatch contribution on the surface of the electrode and on the free surface in the interdigital transducers, and wherein the electrode pitch of the interdigital transducers and the pitch of the grating of the grating reflectors are made to differ from each other to such an extent that ripples caused by a triple transit echo at frequencies other than the peak frequency are deviated so as to lie outside the stop band of the reflectors.

4,760,360

SURFACE-WAVE RESONATOR STRUCTURE HAVING METALLIZATION STRIPS INTERRUPTED IN SUB-SECTIONS IN REFLECTOR FINGERS

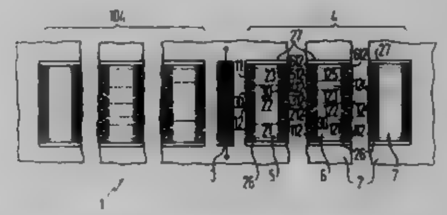
Hans P. Grassl, Zorneding, and Peter Zibis, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 11, 1987, Ser. No. 84,088

Claims priority, application Fed. Rep. of Germany, Aug. 29, [illegible]

Int. Cl.⁴ H03H *9/25, 9/64*

U.S. Cl. 333—195 47 Claims



1. A surface-wave resonator filter comprising:

at least two reflector structures composed of metallization strips on a substrate of piezoelectric material;

at least one interdigital transducer on said substrate of piezoelectric material in which a wave propagation in a direction x perpendicular to said metallization strips exists, said metallization strips having multiple interruptions in a transverse direction y relative to said wave propagation x, whereby for at least one of said reflector structures for at least a portion thereof, at least a plurality of said metallization strips are provided with said interruptions distributed relative to one another in said direction y of said metallization strips, thereby dividing these metallization strips into sub-sections;

said reflector structure having the same plurality of interruptions of said metallization strips at least in a region of a portion of said reflector structure in a direction of said wave propagation direction x;

said portion divided into a plurality of zones parallel to said wave propagation direction x which is equal in number to the plurality of interruptions and respectively only one interruption of a respectively sub-divided metallization strip present in the region of each and every one of these zones, said interruptions arranged distributed relative to one another within a respective zone;

connecting metallization proceeding in the direction of the wave propagation direction x provided between neighboring sub-sections of neighboring metallization strips, a respective sub-section of a metallization strip being electrically connected to a respectively neighboring sub-section of a neighboring metallization strip with these connecting metallizations, at least one sub-section other than end residing sub-sections of a metallization strip being electrically connected to a respectively neighboring sub-section other than end residing sub-sections of a neighboring metaiiization strip with one of said connecting metallizations, whereby no connecting metallizations are present which provide electrical connection between two sub-sections of one and the same metallization strip.

4,760,361

DOUBLE-MODE FILTER

Yoshio Kobayashi, Oomiya, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Mar. 3, 1987, Ser. No. 21,186

Claims priority, application Japan, Mar. 4, 1986, 61-47862

Int. Cl.⁴ H01P *1/219, 7/10*

U.S. Cl. 333—209 9 Claims

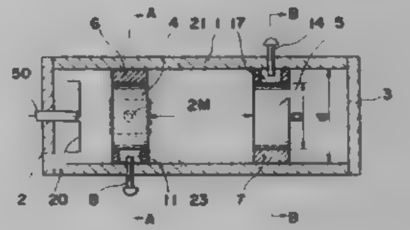
1. A double-mode filter comprising

a cut-off waveguide having an axis;

at least first and second dielectric resonators disposed in said waveguide along said axis, and separated by a predetermined interval; said first resonator having first and fourth mutually perpendicular resonance modes; said second resonator having second and third mutually perpendicular resonance modes;

means for controllably coupling the first and fourth resonance modes, and for controllably coupling the second and third resonance modes;

said first and second resonance modes being coupled by an electromagnetic field in said interval between said resonators;



said third and fourth resonance modes being coupled by an electromagnetic field in said interval between said resonators;

means for adjusting the frequency of said first, second, third, and fourth resonance modes;

input means coupled to said one mode of said first resonator for receiving an input signal and, in response thereto, exciting said first, second, third, and fourth resonance modes,

output means coupled to another of said resonance modes of said filter for being excited thereby and extracting an output signal from said filter.

4,760,362

LEAKY COAXIAL CABLE PROVIDING INDUCTIVE COUPLING BY ELIMINATING RADIATING GAPS, AND THE METHOD OF MAKING SAME

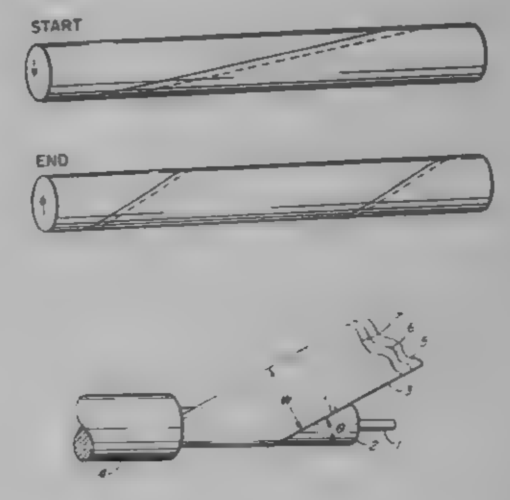
Melvin C. Maki, Kanata, Canada, assignor to Control Data Canada Limited, Ottawa, Canada

Filed Nov. 19, 1985, Ser. No. 799,693

Claims priority, application Canada, Jan. 14, 1985, 472030

Int. Cl.⁴ H01P *3/06*

U.S. Cl. 333—237 12 Claims



2. A leaky coaxial cable having,

a central conductor extending along a longitudinal axis,

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a dielectric layer disposed coaxially around the central conductor; and

an outer coaxial conducting shield, the shield comprising a tape of selected width having a continuous imperforate conductive layer and an insulating layer, said tape being arranged in a spiral configuration to provide inductive coupling, the abutting edges of the conductive layer in the spiral configuration being sufficiently closely spaced to substantially eliminate radiating gaps therebetween, thereby preventing radiation between adjacent edges, said abutting edges being insulated from one another, the pitch angle of the tape with respect to the longitudinal axis of the cable being less than 30° to provide an acceptable level of inductive coupling with minimum capacitive coupling.

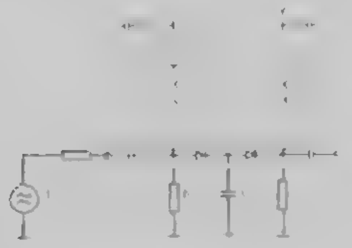
4,760,363
HIGH FREQUENCY SIGNAL SWITCHING SYSTEM
Siegfried Gerendt, Hildesheim, Fed. Rep. of Germany, assignor to Blaupunkt-Werke GmbH, Hildeshiem, Fed. Rep. of Ger-[illegible]

Filed Apr. 9, 1987, Ser. No. 36,255

Claims priority, application Fed. Rep. of Germany, Apr. 16, 1986, 3612732

Int. Cl.⁴ H03H *7/00;* **H03K** *17/74*

U.S. Cl. 333—262 2 Claims



1. Circuit for switching high-frequency signals having a signal input connection (19), a signal output connection (20), reference voltage connections and first and second switch control voltage connections (13, 14) and further comprising:

a T-network having a shunt branch composed of a capacitor (3) and series branches each comprising a diode, a common connection of said series branches being connected to said shunt branch, said capacitor (3) constituting said shunt branch being connected between said common connection and a said reference voltage connection, said diodes of said series branches being similarly poled in cascade in series between said signal input and signal output connections;

first and second blocking capacitors (4, 5) respectively connected to said diodes and respectively interposed between said diodes and said signal input and output connections, for respectively connecting said signal input and output connections to said network and for blocking switch control voltage from reaching high-frequency transmission circuits, a path composed only of a fixed resitance (6, 7) being provided from each connection of a said blocking capacitor (4, 5) with a said diode (1, 2) to a said reference voltage connection,

said shunt branch capacitor (3) having a capacitance which is high enough compared to the capacitance of said diodes for substantially shunting said signals when said diodes (1,2) are non-conducting and small enough relative to the capacitance of said blocking capacitors (4, 5) for providing a negligible shunting down effect when said diodes are conducting;

and first and second high-frequency choke means (8, 11) respectively interposed between said diodes and said switch control connections for connecting switch control voltages to said network and blocking high frequency signal voltage from reaching said switch control connections and first and second by-pass capacitors (10, 12) connected between a said reference voltage connection and, respectively, said first and second switch control voltage connections (13, 14) for by-passing high frequency voltages, said choke means, by-pass capacitors and any other component (9) in series with said choke means between said network and said by-pass capacitors respectively having impedances which are fixed regardless of application or non-application of switch control voltage

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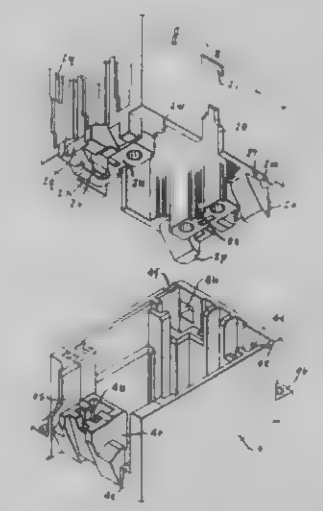
4,760,364
ELECTROMAGNETIC CONTACTOR HAVING IMPROVED STRUCTURE AND ASSEMBLY
Marvin E. Ostby, Brookfield, Wis., assignor to Eaton Corporation, Cleveland, Ohio

Filed Aug. 28, 1986, Ser. No. 901,713

Int. Cl.⁴ H01H *67/02*

U.S. Cl. 335—132 13 Claims



1. An electromagnetic contactor having a molded insulating enclosure including a lower housing and an upper housing including means fixing said upper housing onto said lower housing and connecting the same together, stationary and movable contacts in said upper housing, an insulating molded contact carrier supporting said movable contacts and means guiding said contact carrier for reciprocal movement in said upper housing, an electromagnet comprising an E-shaped magnet frame, a coil, means supporting said magnet frame and coil in said lower housing, an armature secured to said contact carrier and a return spring normally biasing said armature away from said frame for attraction by said magnet frame when said coil is energized to operate said contacts; characterized in that said means fixing said upper housing and said lower housing comprise:

retaining means in one end of said upper housing and said lower housing cooperatively engagable to afford hooking of said upper housing onto said lower housing at said one end and pivoting the other end of said upper housing about said cooperatively engaged retaining means into assembled position on said lower housing;

resilient press-in clamp securing means for attaching said other end of said upper housing to said lower housing to join said upper housing to said lower housing;

and means operable to insure correct location of said return spring as said upper and lower housings are joined comprising means for attaching said return spring to said armature; and said coil being encased in molding material having raised incline means for engagement by said return spring whereby to guide said return spring slidingly therealong into correct location when said other end of said upper housing is pivoted into said assembled position on said lower housing and said housing are secured together

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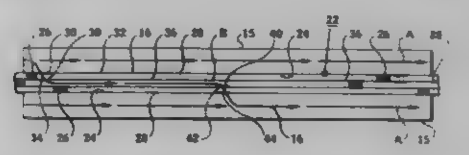
4,760,365
METALLIC INSULATION FOR SUPERCONDUCTING COILS
Richard E. Bailey, San Diego; John Burgeson, Santee; Gustav Magnusson, and Jerome Parmer, both of San Diego, all of Calif., assignors to General Dynamics Corp./Space Systems Division, San Diego, Calif.

Filed Dec. 29, 1986, Ser. No. 946,996

Int. Cl.⁴ H01F *7/22*

U.S. Cl. 335—216 22 Claims



1. In a high field resistive magnet coil,

coating material providing turn to turn insulation for such coil, said coating material comprising a high resistive metal, said high field resistive coil is a superconducting coil comprising a plurality of stacked members forming an elongated member with each member having a portion of the coating removed on a side portion at a plurality of predetermined locations to provide shunt resistance from turn to turn of the coil, when said coil experiences a local hot spot or quench, a portion of the current flowing through the coil flows through an area of removed coating in the metallic insulating material and warms up turns of the coil adjacent to the hot spot and causes the local quench to propagate through the coil.

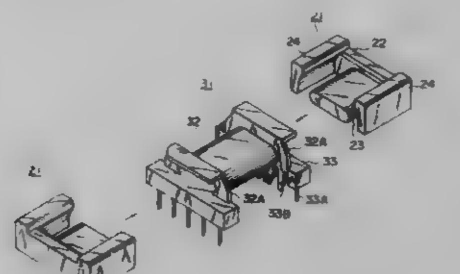
4,760,366
FERRITE CORE
Tadashi Mitsui, Tokyo, Japan, assignor to TDK Corporation, Tokyo, Japan

Filed May 6, 1987, Ser. No. 46,371

Claims priority, application Japan, May 7, 1986, 61-68649[U]

Int. Cl.⁴ H01F *27/24, 27/30*

U.S. Cl. 336—233 5 Claims



1. A ferrite core half for use in a power supply circuit, comprising

(a) a center core on which a coil is wound,

(b) a pair of side legs positioned at both the sides of said center core,

(c) a base plate coupling said center core and said side legs so that said center core and the side legs together with the base plate form essentially an E-shaped structure, and an end portion of said center core, end portions of said side legs and said base plate are all aligned in a single plane, wherein the improvement comprises:

(d) a cross section of said center core is represented by a combination of a rectangle having a first side (2a) and a second side (b−2a), and a pair of arcs each coupled with said first side, wherein the diameter (2a) of each arc is the same as the length of the first side,

(e) the center core is positioned on the base plate so that said second side inscribes with side of the base plate,

(f) a cross section of each side leg has a flat outer face and curved inner face substantially coaxial with the arc of the center core,

(g) an empty recess portion is defined by ends of said side legs, and said base plate,

(h) the core half is symmetrical with regard to a first plane including a central axis of the center core and extending parallel to the flat outer faces of the side legs, but is asymmetrical about a second plane including the central axis of the center core and extending perpendicularly to the first plane,

(i) a side of said empty recess portion formed in said base plate is flat and disposed parallel to said second side of said center core, and

(j) wherein a height of a transformer using said core half is defined by the length of a linear line of the outside of the side leg of said core half.

4,760,367
ELECTRIC FUSES
John F. Williams, Hampton Hill, England, assignor to Cranmer Projects Limited, Middlesex, England

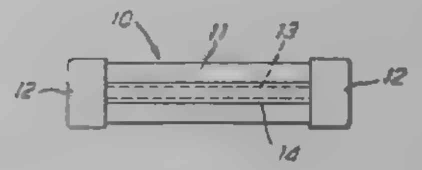
PCT No. PCT/GB86/00237, § 371 Date Mar. 3, 1987, § 102(e) Date Mar. 3, 1987, PCT Pub. No. WO86/06873, PCT Pub. Date Nov. 20, 1986

PCT Filed May 2, 1986, Ser. No. 1,651

Claims priority, application United Kingdom, May 3, 1985, 8511282

Int. Cl.⁴ H01H *85/30*

U.S. Cl. 337—241 8 Claims



1. An electric fuse link comprising a fuse element and means for indicating burning out of the fuse element, wherein the indicating means comprises a conductive deposit which forms a conductive path in parallel with the fuse element of the fuse link but of higher resistance, and a nonconductive deposit covering said conductive deposit over at least part of its length, said nonconductive deposit being light in color, whereby when said fuse element and said conductive deposit burnout said nonconductive deposit will discolor.

4,760,368
MOISTURE SENSOR
Takashi Sugihara, and Masaya Hijikigawa, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 697,932, Feb. 4, 1985. This application Apr. 28, 1986, Ser. No. 856,365

Claims priority, application Japan, Feb. 10, 1984, 59-23599

Int. Cl.⁴ H01L *7/00*

U.S. Cl. 338—34 7 Claims

1. A moisture sensor comprising a substrate, a bottom electrode disposed on said substrate, a moisture sensitive film disposed on said bottom electrode, an upper electrode disposed on said moisture sensitive film, and lead wires connected to said bottom electrode and said upper electrode, respectively, to form a pair of detecting electrodes adapted to determine a variation of the impedance of said moisture sensitive film, said

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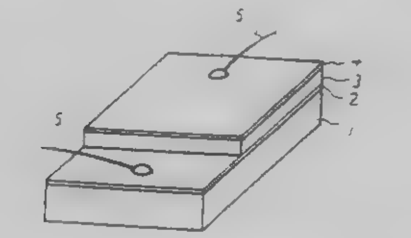
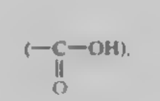
film being made of a moisture sensitive material prepared by cross-linking cellulose acetate through at least one compound selected from the group consisting of compounds containing



two or more isocyanate groups; compounds containing two or more epoxy groups; compounds containing two or more carboxyl groups

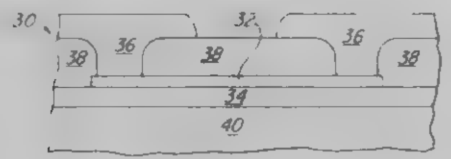


$$(-\underset{\underset{\displaystyle O}{\|}}{C}-OH),$$

and acid anhydrides of carboxylic acids, said cross-linking being sufficient so that the sensitivity of said moisture sensitive material is not damaged upon acetone immersion; said moisture sensitive material characterized by a linear relationship between the impedance of said moisture sensor and the relative humidity in the range of 20% to 100% of relative humidity.

4,760,369
THIN FILM RESISTOR AND METHOD

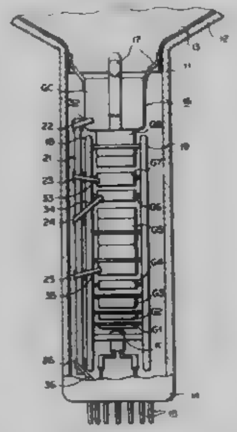
Shiban K. Tiku, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 23, 1985, Ser. No. 769,209
Int. Cl.⁴ H01C *1/012*
U.S. Cl. 338—308 **19 Claims**



1. A thin film resistor material, comprising:
(a) MSi_xN_y with M a metal or alloy from periodic table Groups IV A, V A, VI A, VII A, or VIII and y is greater than (4/3)x.

4,760,370
RESISTOR AND AN ELECTRON TUBE INCORPORATING THE SAME

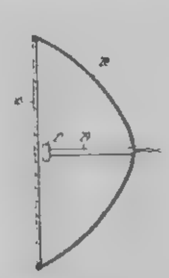
Masaru Nikaido, Miura; Yoshiaki Ouchi, Yokohama; Taketoshi Shimoma, Isezaki; Eiji Kamohara; Shigeru Sugawara, both of Fukaya, and Hideki Yamaguchi, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 25, 1987, Ser. No. 66,200
Claims priority, application Japan, Jun. 27, 1986, 61-149573; Jun. 27, 1986, 61-149575
Int. Cl.⁴ H01C *1/02*
U.S. Cl. 338—308 **6 Claims**



1. A resistor which comprises:
an insulation substrate;
a resistive layer prepared from inorganic materials and printed on said insulation substrate;
and an insulation layer prepared from borosilicate lead glass and over-coated on said resistive layer and containing iron oxide and an oxide of at least one transition metal selected from the group consisting of nickel, chromium, cobalt, zinc, copper, zirconium, and cadmium.

4,760,371
VEHICLE TYRE MONITORING SYSTEM

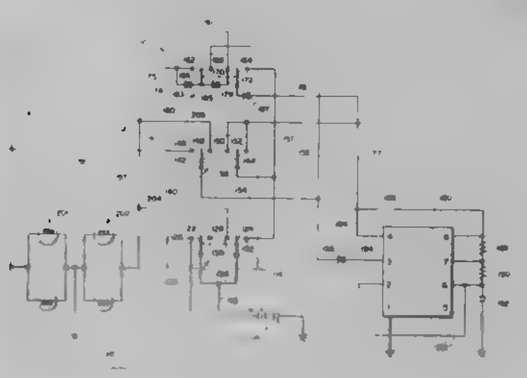
Gerald W. Don, Porthcawl, Wales, assignor to Glamorgan Electronics Limited, Mid-Glamorgan, Wales
Continuation of Ser. No. 816,613, Jan. 6, 1986, abandoned. This application Oct. 27, 1987, Ser. No. 113,419
Claims priority, application United Kingdom, Jan. 5, 1985, 8500281
Int. Cl.⁴ B60Q *1/00;* **B60C** *23/02*
U.S. Cl. 340—57 **8 Claims**



1. A vehicle tyre monitoring system for a vehicle having wheels on opposite sides thereof, comprising a sensor fixedly mounted on the vehicle body adjacent the tyre, within a wheel arch for the tyre and continuously directly facing and spaced from a portion of a side wall of the tyre that turns relative to the fixed sensor, and adapted to sense heat radiated from the tyre at a point remote from said tyre, means for determining an expected temperature norm, substantially below critical tyre temperature, in the vicinity of the tyre, means for simultaneously comparing the sensed heat and the norm, and means for generating an alarm when the comparison indicates a significant deviation, wherein the sensor is on the inboard side of the wheel arch, facing the inner side wall of the tyre.

4,760,372
BICYCLE INDICATOR SYSTEM

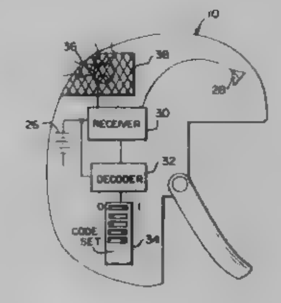
Harry D. Watson, P.O. Box 2812, Boise, Id. 83701
Filed Apr. 17, 1987, Ser. No. 39,441
Int. Cl.⁴ B62J *3/00;* **B60Q** *1/26*
U.S. Cl. 340—134 **13 Claims**



1. A vehicle indicator system comprising:
a right turn signalling lamp;
a left turn signalling lamp;
means for initiating a steady illumination of both lamps to thus provide a running light mode;
means for initiating a flashing illumination of either one of said lamps to thus provide a turn signal mode; and
means for initiating a simultaneous flashing illumination of both lamps to thus provide a hazard flash mode;
said means for initiating a steady illumination of both lamps including a switch having at least two positions, said switch being placed in a first position to initiate steady illumination of both lamps and with said switch being placed in a second position to allow activation of said turn signal mode or said hazard flash mode.

4,760,373
MOTORCYCLE HELMET CONTAINING AN AUTOMATIC BRAKE LIGHT

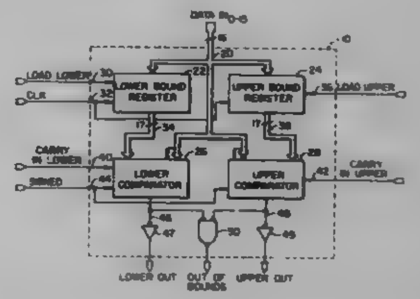
Richard M. Reilly, 31 Norwood Dr., Blue Point, N.Y. 11715
Filed Aug. 7, 1986, Ser. No. 893,995
Int. Cl.⁴ B62J *6/00*
U.S. Cl. 340—134 **3 Claims**



1. A safety helmet, wearable by an operator of a motorcycle having brake lights, a brake pedal, and a switch, comprising:
(a) a protective helmet having a rear portion;
(b) a light source located at said rear portion of said protective helmet;
(c) an accessory transmitter attached to the motorcycle upon which the operator wearing said protective helment sits, said transmitter being connected to the existing switch which controls the existing motorcycle brake lights when pressure is exerted upon the motorcycle's brake pedal, said transmitter emitting a radio signal when the brake pedal is depressed;
(d) a radio receiver located inside said protective helmet which upon receipt of said radio signal from said accessory transmitter turns on said light source and in the absence of said radio signal turns off said light source;
(e) an electrical power source which provides power to said light source and said radio receiver;
(f) an encoder having a code and being connected to said transmitter so that said radio signal of said transmitter is modulated with a coded signal;
(g) a decoder having a code and being connected to said receiver allowing said coded signal of said transmitter to be decoded in such a way that said code of said decoder matches said code of said encoded signal of said transmitter so that said light source is activated when the pedal is depressed;
(h) a binary encoder code set switch connected to said encoder;
(i) a corresponding binary decoder set switch connected to said decoder so that identical codes are set for said switches, said binary switches having settings, fixed bodies, and movable contacts with extensions, said extensions sliding laterally with respect to said fixed bodies of said switches; and
(j) an accessory code card having apertures through which said extensions of said switches are inserted locking said codes of said switches and preventing an accidental change in said settings of said switches.

4,760,374
BOUNDS CHECKER

Ole H. Moller, Sunnyvale, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Nov. 29, 1984, Ser. No. 676,362
Int. Cl.⁴ G06F *7/02*
U.S. Cl. 340—146.2 **7 Claims**



1. Digital single-chip integrated circuit bounds checker means responsive to a plurality of user-selectable signals indicative of a plurality of selectable numeric relationships, and further responsive to a first plural-bit numeric data word ("data-to-be-compared"), for receiving and storing a second and a third plural-bit numeric data words ("lower-" and "upper-limits", respectively,) and for generating at a first output a signal indicative of whether said data-word-to-be-compared bears a first of said plurality of selectable numeric relationships to said lower-limit data word, at a second output a signal indicative of whether said data-word-to-be-compared bears a second of said plurality of selectable numeric relationships to said upper-limit data word, and at a third output a signal indicative of whether said data-word-to-be-compared bears a third

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of said plurality of selectable numeric relationship to said lower- and upper-limit data words; said bounds checker means comprising:
- first and second register means for receiving said lower- and upper-limit data words, respectively, and for temporarily storing said data words;
- first and second comparator means connected to said first and said second register means, respectively, responsive to said data-word-to-be-compared, for generating at a first and a second comparator means output said signal indicative of said first and said second selectable relationship, respectively, said first and said second output of said comparator means forming said first and said second output, respectively, of said bounds checker means; and
- gate means connected to said outputs of said first and said second comparator means for generating at an output said signal indicative of said third selectable relationship, said gate means output forming said third output of said bounds checker means.

4,760,375
DATA TRANSMISSION CABLE

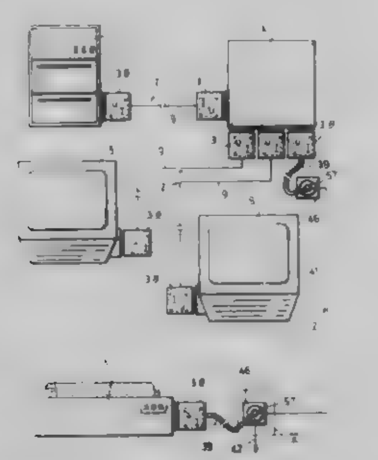
Josef Stecker, Gustav-Cords-Strasse 7, D-5000 Köln 60, Fed. Rep. of Germany

Filed Oct. 26, 1984, Ser. No. 665,104

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1983, 8331081[U]; Dec. 16, 1983, 8336080[U]

Int. Cl.⁴ H04M *11/04*

U.S. Cl. 340—310 A 11 Claims



1. A multi-wire data transmission cable, having a first end and a second end, for transmitting data signals between data devices having voltage interfaces, said cable comprising:
- a multi-wire cable;
- a plug connection member located at each end of the cable, said plug connection member having a handle portion and a contact bar in which the cable terminates and being adapted to be connected to the voltage interfaces of said data devices;
- a circuit support housed in each handle portion,
- the circuit support at the first end including a voltage/current converter for converting voltage signals from said data devices to current signals transmissible via said cable, [illegible]
- the circuit support at the second end including a current-/voltage converter for converting current signals from said data transmission cable to voltage signals transmissible to said voltage interfaces of said data devices,
- the circuit support of the first end further including a current/voltage converter for converting current signals from said data transmission cable to voltage signals transmissible to said voltage interfaces of said data devices, and
- the circuit support of the second end further including a voltage/current converter for converting voltage signals from said data devices to current signals transmissible via said cable,
- whereby said data signals are transmitted between said data devices in the form of current signals.

4,760,376
ELECTRONIC CONVERSION CIRCUIT

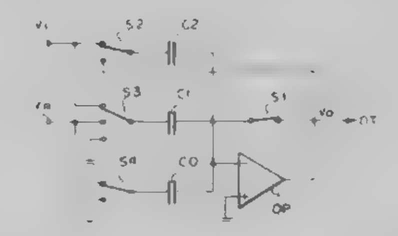
Osamu Kobayashi, Yokohama, and Kunihiko Gotoh, Kunitachi, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 2, 1986, Ser. No. 902,870

Claims priority, application Japan, Sep. 2, 1985, 60-192038

Int. Cl.⁴ H03M *1/02*

U.S. Cl. 340—347 C 9 Claims



1. An analog processing unit connected to an input terminal for receiving an input voltage, to a reference voltage terminal for receiving a reference voltage and to a ground terminal, said analog processing unit performing a selected voltage conversion of the input voltage and comprising:
- an operational amplifier having a non-inverting input terminal connected to the ground terminal, an inverting input terminal, and an output terminal;
- first switching means for connecting and disconnecting the inverting input and output terminals of said operational amplifier;
- a first capacitor having one end connected to the inverting input terminal of said operational amplifier;
- second switching means for connecting the other end of said first capacitor to one of the input terminal and the output terminal of said operational amplifier;
- a second capacitor having one end connected to the inverting input terminal of said operational amplifier; and
- third switching means for connecting the other end of said second capacitor to one of the input terminal, the ground terminal and the reference voltage terminal.

4,760,377
DECOMPACTION OF STORED DATA IN AUTOMATIC TEST SYSTEMS

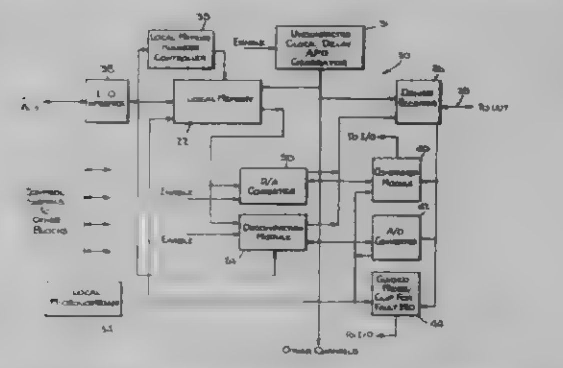
Philip C. Jackson, Mahway, N.J., assignor to Giordano Associates, Inc., Sparta, N.J.

Continuation-in-part of Ser. No. 55,287, Nov. 25, 1983, Pat. No. 4,656,632. This application Mar. 29, 1985, Ser. No. 717,339

Int. Cl.⁴ H03M *7/30*

U.S. Cl. 340—347 DD 35 Claims

13. In automatic test epuipment including a memory configured to store parallel data, and means for accessing parallel data from the memory and supplying data to a unit under test,
- a decompaction apparatus for decoding parallel binary data stored in the memory and providing uncompacted serial binary data to the unit under test, the parallel binary data including binary data which is compacted and compaction codes, the decompaction apparatus comprising:
- means for storing parallel data read from the memory;
- a first decoder coupled to receive at least part of the parallel binary data in the storing means and selectively enablable to output alone or with the storing means uncompacted parallel binary data;
- a second decoder coupled to receive at least part of the parallel binary data in the storing means and selectively enablable to output alone or with the storing means uncompacted parallel binary data;
- the uncompacted binary data associated with at least one of the first and second decoders having a greater number of bits than the parallel data stored in the storing means;
- decoding means for receiving the compaction code of parallel binary data in the storing means, decoding it and causing the decoder specified by the compaction code to be enabled;
- a multiplexer coupled at least to the first and second decoders to receive parallel uncompacted data associated with the first and second decoders and selectively output the parallel data associated with one of the decoders at a time;
- output means coupled to the multiplexer for receiving parallel uncompacted data therefrom and providing serial uncompacted data on at least one output pin of the apparatus for transmission to the unit under test; and
- control means for controlling reading of parallel data from the memory to the storing means and operation of the decoding means the decoders, the multiplexer and the output means.



4,760,378
METHOD AND APPARATUS FOR CONVERTING A RUN LENGTH LIMITED CODE

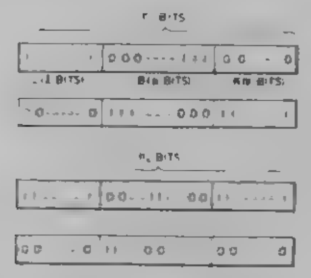
Akira Iketani, Higashiosaka; Chojuro Yamamitsu, Kawanishi; Kunio Sueoda, Ikoma, and Ichiro Ogura, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 3, 1985, Ser. No. 719,629

Claims priority, application Japan, May 21, 1984, 59-102138; Sep. 6, 1984, 59-186705

Int. Cl.⁴ H03M *7/00*

U.S. Cl. 340—347 DD 85 Claims



1. A method for generating a run length limited code which meets a d, k-constraint in which the minimum number of continuous bits having the same binary value is limited to d and the maximum number of continuous bits having the same binary value is limited to k, by converting m_i-bit data words to n_i-bit code words, where $1 \leqq i \leqq i_{max}$, to generate 2^{m_i} n_i-bit bit patterns, comprising the steps of: dividing each of said bit patterns into a leading block L having l continuous bits of the same binary value, an end block R having y continuous bits of the same binary value and an intermediate block B having $\delta(=n_i-l-\gamma)$ bits between the blocks L and R; and selecting as the n_i-bit code words to be used in the m_i/n_i conversion patterns which perfectly meet the d, k-constraint in the block B.

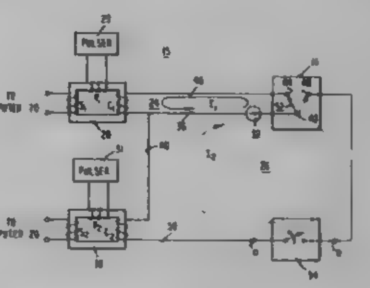
4,760,379
FAIL-SAFE HIGH TEMPERATURE ALARM

Edward J. De Phillips, Aston, Pa., and Larry Mortimer, Willingboro, N.J., assignors to Bell of Pennsylvania, Conshohocken, Pa.

Filed Sep. 5, 1986, Ser. No. 904,845

Int. Cl.⁴ [illegible]

U.S. Cl. 340—597 18 Claims



1. A fail-safe alarm system, comprising:
- an external parameter sensing means;
- first and second current detectors each developing an output signal in response to an input current;
- a first circuit containing a source of direct current and said first current detector;
- a second circuit containing the direct current source and said second current detector;
- switch means responsive to said parameter sensing means for closing alternatively said first and second circuits to cause direct current to flow alternatively therein; and
- alarm means responsive to outputs of said first and second current detectors for generating an alarm signal in response to a change in direct current flowing in at least one of said first and second circuits.

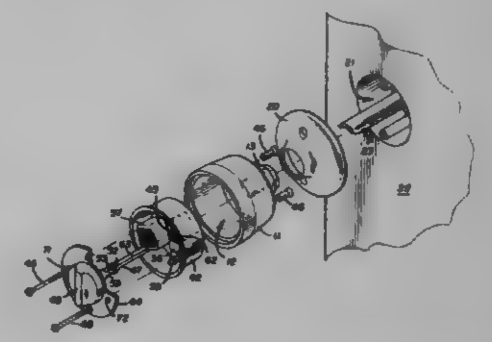
4,760,380
DOOR KNOB LOCK MONITORING ALARM MECHANISM

Jeffery J. Quenneville, 3319 Edward Ave., Santa Clara, Calif. 95050; Edmond N. Quenneville, 5012 Adair Way, San Jose, Calif. 95124, and Israel A. Macias, 966 Azalea Dr., Sunnyvale, Calif. [illegible]

Filed Aug. 27, 1986, Ser. No. 900,795

Int. Cl.⁴ G08B *13/08, 21/00*

U.S. Cl. 340—542 9 Claims



1. In a lockable door latch having turnable exterior and interior knobs for mechanically rotating a spindle for moving a

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door bolt in and out of engagement with a strike plate mounted in a door jamb, and having a manually operated interior mechanism for locking and releasing a locking mechanism, an interior knob incorporating a lock monitoring alarm comprising in combination:

a knob housing having a cylindrical receptacle and an integral cylindrical neck coaxially extending therefrom, the cylindrical neck including means for engaging and mechanically rotating the spindle when the knob housing is turned,

an actuator member extending from within the knob housing, through the cylindrical neck of the knob housing for mechanically engaging the locking mechanism, the actuator member being mechanically moved between a lock position and an unlock position as the locking mechanism engages and disengages respectively,

a source of electrical energy located within the knob housing having at least a pair of terminals, each electrically insulated from the other,

a normally-open electrical switching means located within the knob housing and mechanically coupled to the actuator member for opening and closing responsive to the lock and unlock positions of the actuator member, respectively,

an electrically energized indicator means located within the knob housing for generating a signal perceptible to a human being upon being energized with electrical energy,

electrical current conductor means for electrically connecting the switching means and the indicator means in series between the terminals of the electrical energy source, whereby the indicator means is energized when the switching means is closed.

4,760,381
INTRUDER-DETECTION SYSTEM FOR ROOM SECURITY

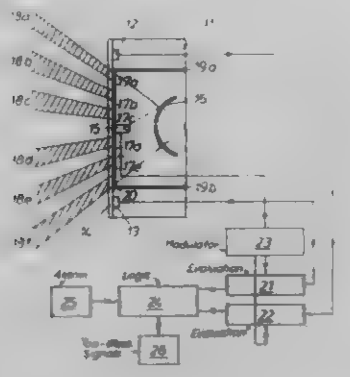
Guenter Haag, Stuttgart, Fed. Rep. of Germany, assignor to Telenot Electronic GmbH, Aalen-Hammerstadt, Fed. Rep. of Germany

Filed Dec. 19, 1985, Ser. No. 810,749

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1984, 3447131

Int. Cl.⁴ G08B *13/18*

U.S. Cl. 340—556 14 Claims



1. A security system comprising one infrared-transmitting element and at least two detector elements producing individual electrical output signals in response to infrared radiation within the wavelength region of said transmitting element, means mounting said transmitting element for directionally limited response in a plurality of angularly spaced intruder-response sectors which span a space field to be protected, said mounting means also mounting said detector elements in spaced relation laterally of said transmitting element and such that the response of each of said detector elements fully laps said space field; electronic means including means sampling and storing the output signals of said detector elements in alternation, evaluating means connected to evaluate currently sampled values against stored values in keyed alternation; and threshold-operated alarm means connected to produce an alarm-signal output only upon concurrent evaluation of at least a predetermined difference in value for currently detected vs. stored signals in both a keying interval for one detector element and the successive keying interval for the other detector element.

4,760,382
RESISTANCE LOOP EQUIPMENT SECURITY SYSTEM

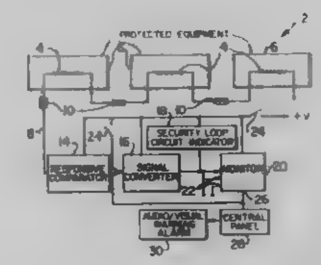
Peter Faulkner, Victoria, Canada, assignor to University of Victoria, Victoria, Canada

Filed May 12, 1986, Ser. No. 862,480

Claims priority, application Canada, Mar. 21, 1986, 504696

Int. Cl.⁴ G08B *13/14*

U.S. Cl. 340—572 15 Claims



1. An equipment security system capable of monitoring at least one security loop for detecting unauthorized removal of equipment interconnected within said security loop by means of a connecting member, said system comprising: predetermined resistance means secured in or to said equipment forming said security loop and being one arm of a resistance bridge; said predetermined resistance means having resistance value sufficient to maintain said resistance bridge in a substantially balanced state; said resistance bridge having a DC voltage permanently applied across one of its two pairs of diagonal terminals and having a diode bridge connected across the other of its two pairs of diagonal terminals; and means responsive through said diode bridge for indicating an unbalanced state of said resistance bridge to indicate interruption of said security bridge.

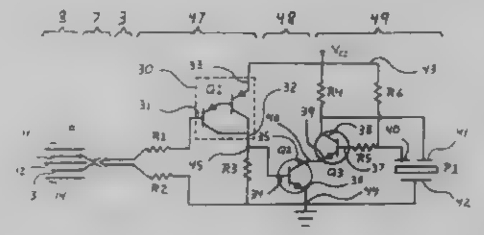
4,760,383
ENURESIS TREATMENT SYSTEM

Daniel J. DiLorenzo, 109 Pearl Light Circle, Ft. Washington, Md. 20744

Filed Dec. 8, 1986, Ser. No. 939,628

Int. Cl.⁴ G08B *23/00*; A61B *19/00*

U.S. Cl. 340—573 19 Claims



1. An improved device for detecting unintentional urination worn over a user's perineal area, comprising:

an elongated, moisture responsive sensor pad having two electrically conductive, water-permeable fabric layers sandwiched among three water absorbant, electrically non-conductive layers of fabric, and having an electrical connection tab with two conducting leads each of which interconnects a separate said electrically conductive layer with a separate external electrical contact on the said tab;

an audio alarm;

electrical circuit means having a high impedance detection stage with two input resistors, each of which corresponds to a said electrically conductive layer, and having an amplifier and switching stage connected to said impedance detection section, said amplifier and switching stage driving an audio output stage activating said audio alarm upon detection of moisture by said sensor pad, said electrical circuit means having no current flow when said pad is dry; and

a cable assembly interconnecting said electrical connection tab external electrical contacts individually in series with a separate impedance detection section input resistor.

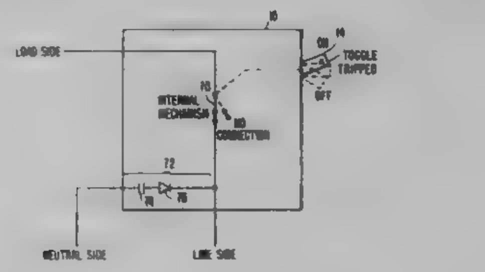
4,760,384
LIGHT-EMITTING DIODE INDICATOR CIRCUIT

Oscar Vila-Masot, Complejo Turistico "El Morro" , Puerto La Cruz, Venezuela

Continuation-in-part of Ser. No. 654,156, Sep. 25, 1984, Pat. No. 4,652,867, which is a continuation-in-part of Ser. No. 22,713, Mar. 16, 1987. This application Mar. 23, 1987, Ser. No. 29,009

Int. Cl.⁴ G08B *21/00*

U.S. Cl. 340—638 9 Claims



1. In a conventional circuit breaker provided with a first fixed contact connected to an input terminal, a movable contact provided on a contact arm movable between a closed position directly contacting said first fixed contact and an open position away from said first fixed contact, a load terminal connected to a load through said first fixed and said movable contact during normal operation and disconnected from said first fixed contact during overload operation, sensing means for sensing the presence of an overload condition across the circuit breaker, said sensing means connected to said load terminal, a neutral line connected in series with said load terminal, and a tripping means sensitive to the movement of said sensing means, said tripping means acting to contact a second fixed contact when said sensing means senses an overload condition, the improvement comprising:

an indicator circuit provided in said neutral line and in series with said input terminal and said load terminal and in parallel with said second fixed contact and said tripping means, said indicator circuit including a light-emitting diode connected in series to a capacitor, wherein said light-emitting diode device is energized when an overload condition is not sensed.

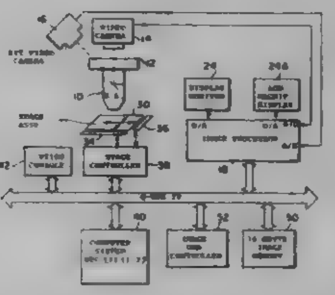
4,760,385
ELECTRONIC MOSAIC IMAGING PROCESS

Peter A. Jansson, Hockessin, Del.; Wade T. Rogers, West Chester, Pa., and James S. Schwaber, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 725,636, Apr. 22, 1985, Pat. No. 4,673,988. This application Jun. 27, 1986, Ser. No. 879,443

Int. Cl.⁴ G09G *1/16*

U.S. Cl. 340—709 4 Claims



1. Method of producing a graphical map from a stored wide-field-of-view high-resolution electronic image, the method comprising the steps:

(a) displaying a contiguous small portion of the stored wide-field-of-view high-resolution electronic image on a display monitor, said displayed image portion at any instant in time being within a display window as displayed on the display monitor;

(b) displaying an electronic visible cursor, superimposed on the displayed image portion, at a fixed position within the display window;

(c) roaming the display window within the stored wide-field-of-view high-resolution electronic image under operator control;

(d) generating mapping marks under operator control from the fixed cursor position within the display window, said mapping marks being stored in spatial relationship in juxtaposition with said stored image, made visible on said display monitor, and roamed in coincidence with the displayed image portion visible in the display window such that accurate juxtaposition of the marks with the image is maintained; and

(e) storing the x,y coordinates of the mapping marks in a separate memory.

4,760,386
AUTOMATIC HIDING AND REVEALING OF A POINTER DURING KEYBOARD ACTIVITY

Allen W. Heath, Cedar Park, and Ronald K. Sheppard, Austin, both of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 13, 1986, Ser. No. 873,757

Int. Cl.⁴ [illegible]

U.S. Cl. 340—709 20 Claims

1. In a computer system having a keyboard, a visual display, and a pointing device, a method of displaying a pointer controlled by said pointing device on said visual display comprising:

removing said pointer from a presentation on said visual

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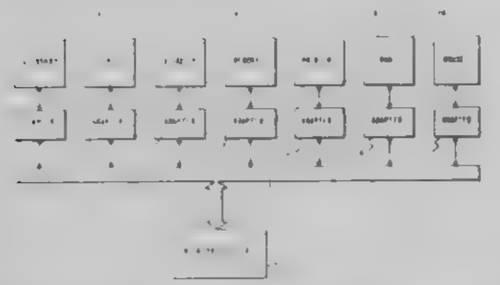
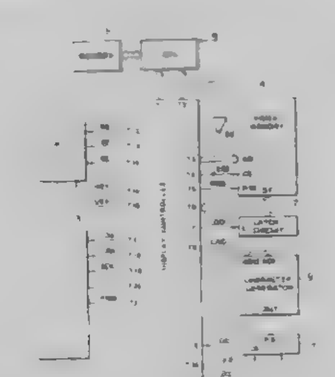
display upon receipt by said system of an event generated by said keyboard; and



displaying said pointer on said visual display after passage of a chosen time delay which begins in association with said event.

4,760,387
DISPLAY CONTROLLER

Takatoshi Ishii, Tokyo, and Makoto Kaneko, Hamamatsu, both of Japan, assignors to Ascii Corporation, Tokyo and Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, both of, Japan
Filed Jan. 31, 1986, Ser. No. 824,953
Claims priority, application Japan, Mar. 19, 1985, 60-55127
Int. Cl.⁴ G09G *3/00*
U.S. Cl. 340—716 **6 Claims**



1. A display controller capable of selectively driving a selected one of a first and a second display unit, the first display unit having a display screen comprised of a scanning-type screen which provides M rows of N columns of display positions thereon, the second display unit having a display screen constituted by upper and lower scanning-type screens, each of which provides P rows of Q columns of display positions thereon, the display controller being further connected to memory means having a plurality of addresses, each for storing display data relating to an image to be displayed at a respective one of the display positions of the selected display unit, said display controller comprising:

(a) display unit designating means for designating one of said first and second display units, said designation means producing a first designation signal when the first display unit is selected, and producing a second designation signal when the second display unit is selected;

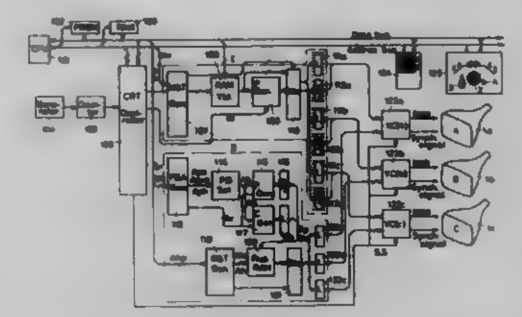
(b) tiiming signal generating means, responsive to said first designation signal, for generating first synchronization signals is response to said first designation signal to be supplied to the first display unit for scanning the screen thereof, said timing signal generating means being further responsive to said second designation signal to generate second synchronization signals in response to said second designation signal, to be supplied to the second display unit for scanning the upper and lower screens thereof;

(c) address data generating means, responsive to said first designation signal, for generating a first series of address data representative of addresses of the memory means and sequentially outputting said generated address data to the memory means in accordance with the scanning of the display screen of the first display unit, said address data generating means being further responsive to said second designation signal for generating a second series of address data representative of those of the addresses of the memory means corresponding to the upper screen and a third series of address data representative of those of the addresses of the memory means corresponding to the lower screen, said address data generating means alternately outputting, responsive to said second designation signal, each of said second series of address data and each of said third series of address data to the memory means in accordance with scanning of the upper and lower screens; and

(d) display signal generating means, responsive to said first designation signal for generating a first display signal to be supplied to the first display unit based on data read from the memory means in accordance with said first series of address data, said display signal generating means being further responsive to said second designation signal to generate second and third display signals to be supplied to the second display unit based on data read from the memory means in accordance with said second and third series of address data, said second and third display signals being used to display images on the upper and lower screens of said second display unit, respectively.

4,760,388
METHOD AND AN APPARATUS FOR DISPLAYING A UNIFIED PICTURE ON CRT SCREENS OF MULTIPLE DISPLAYING DEVICES

Yoshihiro Tatsumi, Kashiwara; Masaaki Nagafune, and Takao Shimizu, both of Kashihara, all of Japan, assignors to Tatsumi Denshi Kogyo Kabushiki Kaisha, Osaka, Japan
Filed May 18, 1983, Ser. No. 495,663
Int. Cl.⁴ G09G *1/00*
U.S. Cl. 340—717 **23 Claims**



1. A method of displaying a plurality of portions of a unified picture on multiple spatially adjacent displaying devices comrpises the steps of:

(a) controlling each of said displaying devices indivdiually while maintaining a synchronized relation among displays provided thereon,

(b) dividing the unified picture into a plurality of image portions, each of said portions corresponding to a respective one of said displaying devices, storing each of said image portions as data representing a plurality of picture elements in a memory,

(c) inputting said picture elements data stored in said memory to said displaying devices,

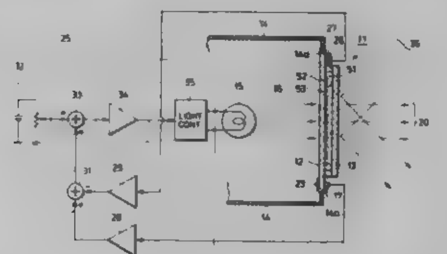
(d) said step of maintaining a synchronized relation comprising the further step of substantially simultaneously reading from memory picture element data for corresponding

locations on each of said plurality of image portions for CRT screens of different ones of said displaying devices and

(e) wherein said inputting step comprises the step of distributing the picture element data to said corresponding displaying devices.

4,760,389
TRANSMITTING TYPE DISPLAY DEVICE

Shigeo Aoki, Hodokiao; Yasuhiro Ukai, and Masaru Yasui, both of Yao, all of Japan, assignors to Hosiden Electronics Co. Ltd., Tokyo, Japan
Filed Nov. 20, 1986, Ser. No. 932,839
Claims priority, application Japan, Nov. 27, 1985, 60-266636
Int. Cl.⁴ G03B *21/14;* **G02B** *27/00;* **G09G** *3/36;* **G02F** *1/135*
U.S. Cl. 340—719 **6 Claims**



1. A transmitting type display device comprising:

a transmitting type display panel mounted in a housing, said display panel closing an opening in said housing;

a light source disposed within said housing on the back side of said transmitting type display panel for producing light illuminating the back side of said transmitting type display panel;

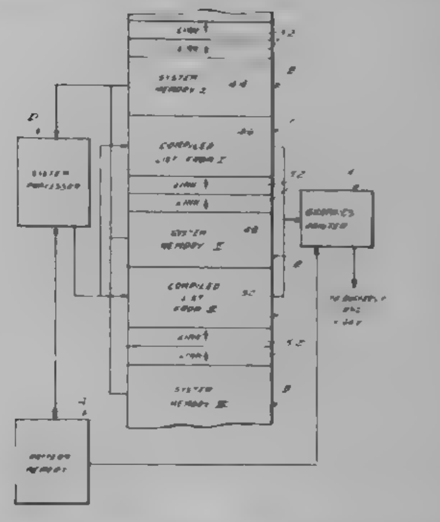
an ambient light detector disposed near said transmitting type display panel for detecting the intensity of ambient light incident on the display surface of said transmitting type display panel, said ambient light detector being formed on a projecting portion of a transparent substrate of said transmitting type display panel, and a light-blocking layer being formed on said transparent substrate for shielding said ambient light detector from light from said light source; and

a brightness controller for controlling said light source according to the outside of said ambient light detector such that the intensity of light from said light source incident on said transmitting type display panel is increased with an increase in the detected ambient light intensity;

said transmitting type display panel being a liquid crystal display panel which includes first and second transparent substrates and a liquid crystal sealed therebetween, pixel electrodes and thin-film transistors for selectively driving said pixel electrodes being formed on the inner surface of said first transparent substrate, said first transparent substrate having said projecting portion projecting therefrom outwards of said second transparent substrate, and said ambient light detector being formed on the same surface of said first transparent substrate on which said thin-film transistors are formed.

4,760,390
GRAPHICS DISPLAY SYSTEM AND METHOD WITH ENHANCED INSTRUCTION DATA AND PROCESSING

Stephen Maine, Fort Salonga, N.Y.; Duncan Harrower, Fordingbridge, England, and Abraham Mammen, Levittown, N.Y., assignors to Computer Graphics Laboratories, Inc., New York, N.Y.
Filed Feb. 25, 1985, Ser. No. 705,367
Int. Cl.⁴ G09G *1/16*
U.S. Cl. 340—747 **26 Claims**



1. A method for creating on a display screen of a CRT monitor, TV receiver or the like a representation of a scene comprising selected ones of a plurality of object elements, said method comprising

A. storing first memory data corresponding to said plurality of object elements;

B. storing second memory data identifying object elements together with instructions as to the manner and location of representations of said object elements or parts thereof;

C. creating, from said second memory data, third memory data corresponding to identification and instructions with respect to selected ones of the object elements to be displayed;

D. creating, from said first memory data and in conformity with the identification and instructions of said third memory data, display data for said selected object elements;

E. causing the display data of step D to produce a display on said screen;

F. at least said steps D and E being carried out in real time relative to the scanning time of said monitor, receiver or the like.

4,760,391
TRI-STATE ON-SCREEN DISPLAY SYSTEM

Robert J. Gries, Indianapolis, Ind., assignor to RCA Licensing Corporation, Princeton, N.J.
Filed May 10, 1985, Ser. No. 732,865
Int. Cl.⁴ G09G *1/14*
U.S. Cl. 340—748 **15 Claims**

1. On-screen display apparatus, comprising:

character generating means for generating a tri-state character signal at an output point including first driving means coupled to said output point for selectively driving said character signal to a first voltage level when enabled, second driven means coupled to said output point for selectively driving said character signal to a second voltage level when enabled, and control means for selectively enabling and disabling said first and second driving means, said character signal being allowed to exhibit a third level

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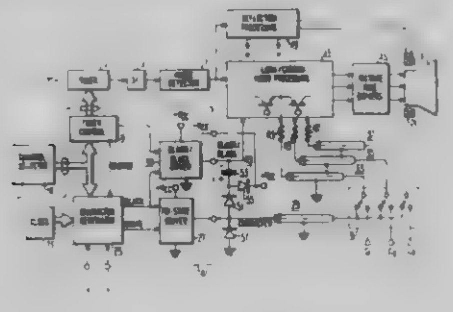
when said first and second driving means are disabled by said control means;

image producing means for generating an image in response to received signals;

coupling means coupled between said output point of said character generating means and said image producing means for coupling said character signal to said image producing means;

auxiliary driving means coupled to said coupling means for driving said character signal toward said third level from said first level when an auxiliary signal occurs; and

auxiliary signal generating means for generating said auxiliary signal when both of said first and second driving means have been disabled by said control means;



said auxiliary signal generating means including pulse generating means for generating a pulse having a transition when both of said first and second driving means have been disabled, said transition comprising said auxiliary signal;

said auxiliary driving means including a capacitive device and a unidirectional conduction device coupled in series between said coupling means and said auxiliary signal generating means so that said unidirectional conduction device is rendered conductive when said transition of said pulse occurs.

4,760,392
TRANSMITTER FOR RADIO REMOTE CONTROL SYSTEM FOR MODEL DRIVE UNIT

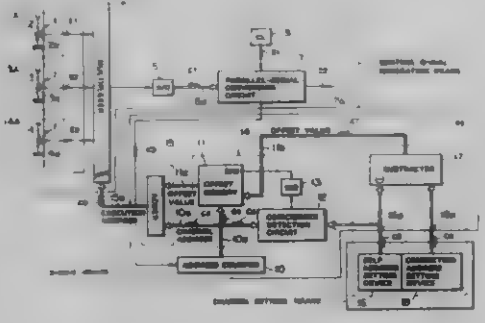
Michio Yamamoto, and Satoshi Sekiya, both of Mobara, Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

Filed Jan. 23, 1987, Ser. No. 6,160

Claims priority, application Japan, Mar. 19, 1986, 61-61754

Int. Cl.⁴ H04Q *1/00*

U.S. Cl. 340—825.69 7 Claims



1. A transmitter for a radio remote control system for a model drive unit, comprising:

a plurality of control levers arranged corresponding to channels;

a control signal generating means for generating control signals depending on displacement of said control levers in a predetermined order including a control voltage generating circuit for generating a control voltage depending on displacement of each of said control levers and an analog-digital converter for generating said control voltage in the form of a control voltage code obtained by converting said control voltage into a parallel digital signal;

a transmission means for transmitting a signal associated with each of said control signals;

a channel setting means for setting self-channels and connection channels; and

a change means for changing said order of generating said control signals depending on said self-channels and connection channels set by said channel setting means.

4,760,393
SECURITY ENTRY SYSTEM

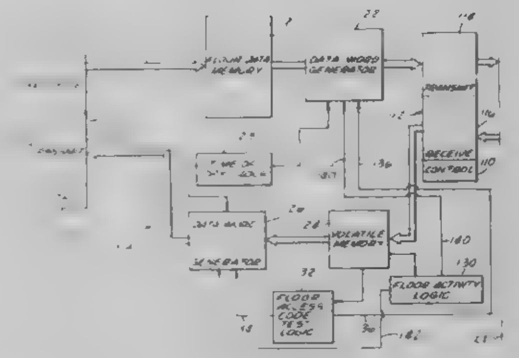
Barbara J. Mauch, Inglewood, Calif., assignor to Marlee Electronics Corporation, Inglewood, Calif.

Continuation-in-part of Ser. No. 811,962, Dec. 18, 1985, Pat. No. 4,721,954. This application Mar. 27, 1986, Ser. No. 844,657

The portion of the term of this patent subsequent to Jan. 26, 2005, has been disclaimed.

Int. Cl.⁴ E05B *49/00*; G08B *19/00*

U.S. Cl. 340—825.310 6 Claims



1. A security system for use in a complex including a central control location and a plurality of floors, or other forms of contiguous space, each floor comprising a plurality of lockable access locations, said system comprising:

control apparatus including control memory means at said control location for forming test access code signals;

a plurality of access units at said access locations including actuator means for providing entry access code signals, storage means for storing said test access code signals from said control apparatus, comparison means for comparing said test access code signals from said storage means and entry access code signals provided from said actuator means to provide an entry signal solely on the occurrence of a proper comparison between said test access code signals and said entry access code signals, as to release a lockable access and further, said comparison means to provide an error signal on the occurrence of a lack of a proper comparison;

floor unit isolation means at said floors including floor memory means for test access code signals and receive-transmit [illegible]

first data bus communication means coupling select of said access units to said floor unit isolation means for communicating data words between select of said access units and said floor unit isolation means; and

second data bus communication means coupling said floor unit isolation means to said control apparatus for communicating data words between said floor unit isolation means and said control apparatus whereby said first and second communication means store test access code signals from said control apparatus in the storage means of a specified access unit.

4,760,394
ANTENNA FOR TRANSMITTING AND/OR RECEIVING RADIO WAVES BY WAY OF ELECTROMAGNETIC INDUCTION

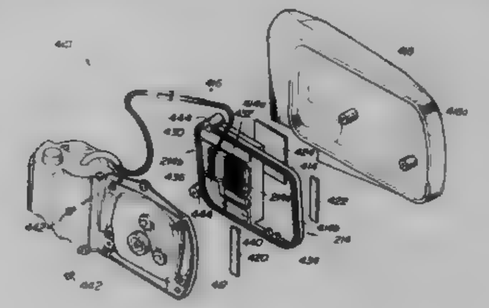
Mikio Takeuchi; Kinichiro Nakano, both of Zama; Motoki Hirano, Yokohama, and Takahisa Tomoda, Sagamihara, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Aug. 11, 1986, Ser. No. 895,371

Claims priority, application Japan, Aug. 12, 1985, 60-177291

Int. Cl.⁴ H04Q *9/00*; E05B *49/00*

U.S. Cl. 340—825.540 33 Claims



1. In an automotive keyless entry system for operating a vehicle device by means of a radio code signal transmitter transmitting a radio signal indicative of a preset code which identifies said radio code transmitter, and a controller receiving said radio signal and comparing the received code with a preset code therein for generating a control signal for operating said vehicle device when the received code matches said preset code in said controller, said transmitter having a loop antenna, and said controller being connected with a loop antenna mounted on a vehicle body and adapted to establish radio signal communication between said loop antenna in said transmitter by way of electromagnetic induction,

said antenna to be mounted on said vehicle body comprising:

a first loop antenna component forming a planar antenna loop;

a second loop antenna component having a smaller loop and disposed within the circumference of said first loop antenna component, the axis of said second loop antenna component being substantially perpendicular to the axis of said first loop antenna component; and

a coupling means for coupling between said first loop antenna component and said second loop antenna component by way of inductive coupling.

4,760,395
ARRANGEMENT FOR COMMUNICATIONS BETWEEN EQUIPMENT BELONGING TO DIFFERENT NETWORK ARCHITECTURES

Kurt Katzeff, and Bengt Akesson, both of Televerket, S-123 86 Farsta, Sweden

PCT No. PCT/SE84/00351, § 371 Date Jun. 20, 1986, § 102(e) Date Jun. 20, 1986, PCT Pub. No. WO86/02749, PCT Pub. Date May 9, 1986

PCT Filed Oct. 23, 1984, Ser. No. 881,359

Int. Cl.⁴ H04Q *9/00*; H04L *11/00*

U.S. Cl. 340—825.03 5 Claims

1. An arrangement for enabling communication between any two pieces of equipment, such as terminals and processors, in a communications network comprising one specific network architecture (ICNA), said pieces of equipment having a network architecture of either said specific network architecture (ICNA) or another network architecture within a group of at least two different network architectures (SNA, DCNA, DECNET), said communications network including:

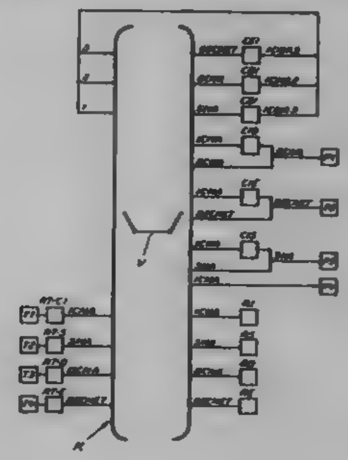
selector means for establishing connections between various pieces of equipment (V),

conversion equipment (CEI, CDI, CSI, CID, CIE) and path selection equipment (RJ, RS, RD, RE), both said conversion equipment and path selection equipment being connected to the selector means,

first means for establishing a connection between pieces of equipment having the same network architecture via the selector means without any conversion equipment,

second means for establishing a connection between pieces of equipment, a first one of which having the specific network architecture (ICNA) and a second having a second network architecture (SNA, DCNA, or DECNET), said second means establishing said connection via the selector means and a single piece of conversion equipment (e.g. CID), and

third means for establishing a connection between pieces of equipment having two different network architectures, other than the specific network architecture (SNA, DCNA, DENET, etc.), said third means establishing said connection successively via the selector means, a first piece of conversion equipment, the selector means again and a second piece of conversion equipment (CSI, CID).



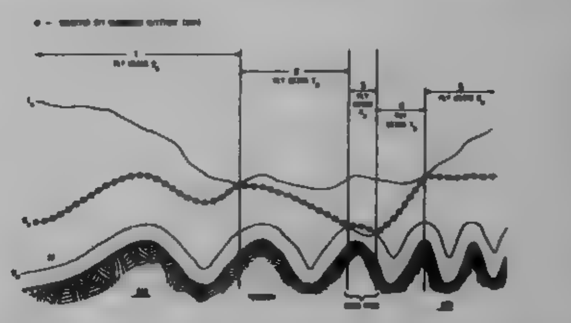
4,760,396
APPARATUS AND METHOD FOR ADJUSTING SET CLEARANCE ALTITUDE IN A TERRAIN FOLLOWING RADAR SYSTEM

George M. Barney, Dallas, and Bryan A. Stickel, Garland, both of Tex., assignors to Merit Technology Incorporated, Plano, Tex.

Filed Jul. 11, 1986, Ser. No. 884,398

Int. Cl.⁴ G01S *13/08*

U.S. Cl. 342—65 12 Claims



1. An electronic apparatus for controlling the vertical flight

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vector angle of an inflight aircraft to fly the aircraft at selected altitudes corresponding to respective selected positions on the terrain, said apparatus comprising:

means for determining downrange distance and elevation relative to the aircraft of said selected positions on the terrain;

means for determining a first altitude corresponding to each of said selected positions, said first altitude representing the maximum altitude at which the aircraft is not subject to line-of-sight detection at the corresponding selected position by a ground threat;

means for determining a second altitude corresponding to each of said selected positions, said second altitude representing the maximum altitude at which it is desired to fly the aircraft at the corresponding selected position;

means for comparing the first and second altitudes for each selected position and for generating a first electrical signal representing the lesser of said first and second altitudes for each selected position;

means for comparing the lesser of said first and second altitudes with a third altitude representing the minimum altitude at which it is desired to fly the aircraft for each selected position and for generating a second electrical signal representing the greater altitude as between the lesser of the first and second altitudes and the third altitude, said second electrical signal being indicative of the selected altitude for the corresponding selected position; and

means responsive to said second electrical signal and to the respective downrange distances and elevations of said selected positions for controlling the vertical flight vector angle of the aircraft so that the aircraft flies along a path corresponding to the respective selected altitudes.

4,760,397
TARGET TRACKING SYSTEM

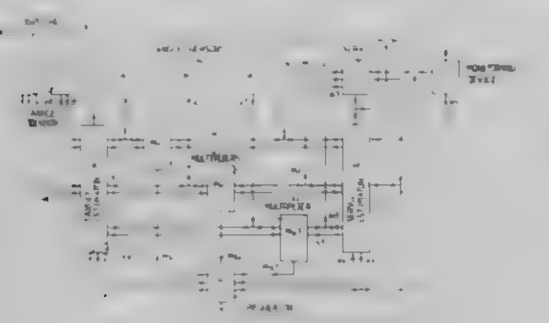
Heinz Piccolruaz, Regensdorf, Switzerland, assignor to Contraves AG, Zürich, Switzerland

Filed Dec. 18, 1987, Ser. No. 134,751

Claims priority, application Switzerland, Dec. 22, 1986, 05216/86

Int. Cl.⁴ G01S *7/46;* F41G *5/08*

U.S. Cl. 342—75 14 Claims



1. A target tracking system comprising:

at least one angle sensor;

said at least one angle sensor containing at least one antenna defining at least one line of sight;

said at least one angle sensor measuring angular deviations of a target from said at least one line of sight;

at least one range sensor for measuring the distance between said target and said at least one range sensor;

said at least one range sensor containing at least one antenna;

each one of said at least one angle sensor and said at least one range sensor defining at least one transmission range and at least one reception range;

a servo system operatively associated with said at least one angle sensor and said at least one range sensor;

said servo system continuously laying said at least one antenna of said at least one angle sensor and said at least one antenna of said at least one range sensor towards said target such that said target is continually present within said at least one transmission range and said at least one reception range of said at least one antenna;

means for generating a position sensor signal;

a servo estimator for estimating the state of movement of said servo system by means of said position sensor signal;

said servo estimator constituting a model of said servo system;

said at least one angle sensor and said at least one range sensor generating respective target sensor signals;

a target estimator operatively associated with said at least one angle sensor, said at least one range sensor and said position sensor signal generating means;

said target estimator estimating the state of movement of said target on the basis of said position sensor signal and all of said target sensor signals;

said target estimator constituting a model of the movement of said target;

a regulator for identically controlling said servo system and said servo estimator by means of a common control signal;

said regulator constituting an inverse system with respect to the residual portion of the target tracking system;

said at least one angle sensor generating at least one target deviation signal;

at least one multiplier operatively associated with said at least one angle sensor;

said at least one multiplier transforming with minimum delay said at least one target deviation signal originating from said at least one angle sensor into at least one common control signal for said servo system and said servo estimator;

said at least one multiplier defining at least one multiplier matrix; and

said at least one multiplier generating as said common control signal, at least one control vector constituting the product of said at least one multiplier matrix and said at least one target deviation signal.

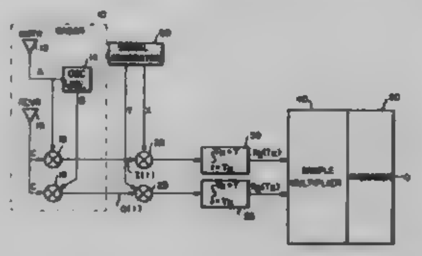
4,760,398
METHODS AND APPARATUS FOR DETERMINING THE DIFFERENTIAL SIDEBAND POWER OF RADAR SIGNALS

Keith H. Norsworthy, Bellevue, Wash., assignor to The Boeing Company, Del.

Filed Sep. 30, 1981, Ser. No. 307,163

Int. Cl.⁴ G01S *13/62, 15/62*

U.S. Cl. 342—114 15 Claims



1. A method of determining the differential sideband power of energy received in a desired frequency window by a radar system, that determination of power being useful in detecting non-oscillatory movement of an object within the range of said radar system, said method comprising the steps of:

(a) transmitting radar energy;

(b) receiving reflections of said transmitted radar energy;

(c) heterodyning a sample of said transmitted energy and said received reflections to produce first and second quadrature signals;

(d) generating first and second orthogonal signals;

(e) integrating the product of said first quadrature signal and said first orthogonal signal over a predetermined time interval to produce a first integral signal;

(f) integrating the product of a second one of said quadrature signals and a second one of said orthogonal signals over said predetermined time interval to produce a second integral signal; and

(g) time-averaging the product of said first and second integral signals.

4,760,399
METHOD FOR GENERATING ANTENNA FOLLOW-UP SIGNALS

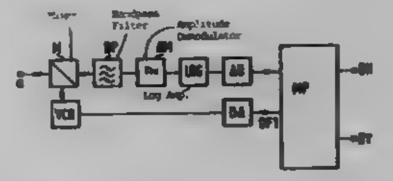
[illegible], Backnang, Fed. Rep. of Germany, assignor to ANT Nachrichtentechnik GmbH, Backnang, Fed. Rep. of Germany

Filed May 29, 1984, Ser. No. [illegible]

Claims priority, application Fed. Rep. of Germany, May 31, 1983, [illegible]

Int. Cl.⁴ G01S *03/22*

U.S. Cl. 342—427 3 Claims



1. In a method for producing antenna follow-up signals to track another antenna which emits a beacon signal, the method including: deriving, with the use of a mode coupler connected to the tracking antenna, a sum signal and at least one difference signal from the beacon signal received by the tracking antenna; subjecting the difference signal to cyclical changes in phase; superposing the difference signal as it passes through the different phase states on the sum signal to produce an amplitude modulated signal; and determining whether the amplitude modulated signal is subjected to a positive or negative change in amplitude during the change of the difference signal from one phase to another and the amount by which the amplitude modulated signal changes; the improvement comprising:

converting the amplitude modulated signal into another frequency by means of a mixer which receives the amplitude modulated signal and a mixing signal;

feeding the converted amplitude modulated signal to an amplitude detector via a narrowband bandpass filter which permits only the frequency of the converted amplitude modulated signal to pass, the amplitude detector producing an output signal corresponding to the amplitude of the amplitude modulated signal;

cyclically switching a voltage controlled oscillator to produce a signal which cyclically changes its frequency between two frequencies for the duration of each phase state of the difference signal and feeding the signal produced by the voltage controlled oscillator to the mixer as the mixing signal, the converted signal at the output of the mixer changing its frequency between two further frequencies in response to the change of frequency of the mixing signal; and

controlling the voltage controlled oscillator with a control voltage that is derived from a difference between attenuations suffered by the converted amplitude modulated signal in the bandpass filter at the two further frequencies of such converted signal.

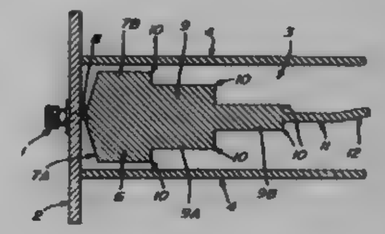
4,760,400
SANDWICH-WIRE ANTENNA

Andrew J. Lait, Kanata, Canada, assignor to Canadian Marconi Company, Montreal, Canada

Filed Jul. 15, 1986, Ser. No. 885,954

Int. Cl.⁴ H01Q *10/38*

U.S. Cl. 343—700 MS 15 Claims



1. In a sandwich-wire antenna adapted to be connected to a coaxial cable propagating a TEM wave and to operate over a frequency band, said antenna comprising:

a dielectric carrier board;

a radiating element mounted on said carrier board and comprising an undulating microstrip track extending longitudinally of said dielectric carrier board and propagating a quasi-TEM wave;

said carrier board with said radiating element being disposed in a conductive channel having side walls adjacent the side edges of said carrier board and said channel further including at least one end wall;

the improvement comprising:

input transition means for providing a transition from the impedance of said coaxial cable to the impedance of said radiating element of said sandwich-wire antenna, and for simultaneously providing a transformation from the TEM wave of the co-axial cable to the quasi-TEM wave of said radiating element, said input transition means being formed integrally with and of the same material as the material of said microstrip track.

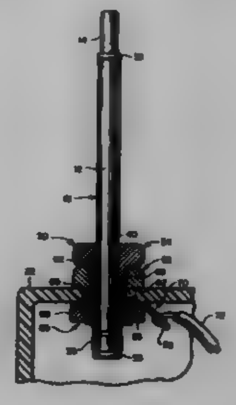
4,760,401
REMOVABLE ROD ANTENNA

[illegible], Tokyo, Japan, assignor to General Research of Electronics, Inc., Tokyo, Japan

Filed Jan. 28, 1986, Ser. No. 823,317

Int. Cl.⁴ H01Q *1/24*

U.S. Cl. 343—702 8 Claims



1. a removable rod antenna comprising: first fitting means for rigidly mounting to a radio body; elongate antenna body means; second fitting means of complementary configuration to the configuration of said first fitting means for removably engaging said first fitting means; a retaining means for holding

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said second fitting means in captive relation on said antenna body means, such that the antenna is completely removed from the radio body both mechanically and electrically upon disengagement of the second fitting means from the first fitting means; and mating coupling means defined respectively on said first and second fitting means for casing the first and second fitting means to be engaged in electrically conductive contact with each other so as to thereby removably mount said antenna body means to said radio body and in conductive contact with said first fitting means which first fitting means is rigidly mounted to the radio body; a terminal comprising a generally annular member having a radially outwardly extending connector portion; and terminal mounting means comprising a first threaded fastener portion formed on said first fitting means and a threaded fastener of complementary form to, and for mating with, said first threaded fastener portion; one of said first threaded fastener portion and said threaded fastener comprising an externally threaded member of complementary outer diameter to, and for receiving, said annular member closely fitted therearound and, for engaging said annular member in electrically conductive contact with at least said threaded fastener and for rigidly coupling said first fitting means to the radio body; wherein said antenna body means comprises an elongate cylindrical body; wherein said second fitting means has a generally cylindrical, depending, slotted skirt for frictionally engaging and slideably receiving said elongate cylindrical body therethrough; and wherein said retaining means includes respective increased diameter portions at axially spaced locations on said antenna body means of diameter greater than that of said depending skirt of said second fitting means.

[illegible]

ANTENNA SYSTEM INCORPORATED IN THE AIR SPOILER OF AN AUTOMOBILE

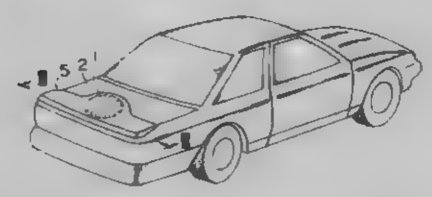
Hiroshi Mizuno; Takashi Sakurai, both of Nagoya, and Yoshihisa Shibata, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed May 30, 1986, Ser. No. 868,679

Claims priority, application Japan, May 30, 1985, 60-115204

Int. Cl.⁴ H01Q *1/32, 3/32*

U.S. Cl. 343—713 9 Claims



1. An antenna system for an automotive vehicle comprising:

air spoiler means mounted on a body of said automotive vehicle for rectifying an airstream along the body of said automotive vehicle, said air spoiler having an interior space and having at least a portion of an upper surface thereof made of a dielectric material for transmitting radio waves;

at least one planar antenna element accommodated within said interior space of said air spoiler arranged on the body of an automotive vehicle so that a principal radio wave receiving plane of said planar antenna is substantially parallel with a surface of the body and faces said portion of the upper surface of said air spoiler made of the dielectric material, said planar antenna element being supported to be rotated about a substantially vertical axis; and

driving means accommodated within said interior space of said air spoiler for rotating said planar antenna.

[illegible]

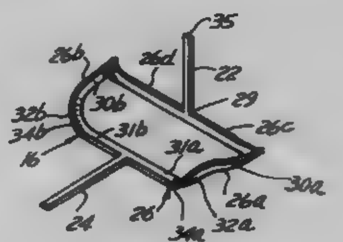
POLARIZED SIGNAL RECEIVER PROBE PROVIDED WITH A BIFURCATED TRANSMISSION LINE

Fay Grim, 565 Newburgh, Port Charlotte, Fla. 33952

Continuation-in-part of Ser. No. 820,721, Jan. 21, 1986, which is a continuation-in-part of Ser. No. 796,284, Nov. 8, 1985, which is a continuation-in-part of Ser. No. 621,119, Jun. 15, 1984, Pat. No. 4,554,553. This application Apr. 11, 1986, Ser. No. 850,740

Int. Cl.⁴ H01Q *13/00*

U.S. Cl. 343—786 12 Claims



1. In a polarized signal receiver comprising a first waveguide of circular cross-section for receiving polarized signals at one open end, said first waveguide having a rear wall, a second waveguide for transmitting polarized signals, a dielectric rod controllably rotatably mounted axially through the rear wall of said first waveguide, means for controllably rotating said dielectric rod and a signal transferring probe mounted in said dielectric rod concentric with the axis of rotation thereof, said signal transferring probe comprising a receiver portion disposed in said first waveguide in a plane orthogonal to the axis of said first waveguide for receiving one of the polarized signals in said first waveguide, a launch or re-transmitter portion extending into the second waveguide substantially perpendicular to the axis of said second waveguide, said launch or re-transmitter portion being disposed concentric with said dielectric rod and rotatable in unison with said dielectric rod, and a transmission line portion connecting said receiver portion to said launch or re-transmitter portion, the improvement comprising said transmission line portion having two integral oppositely directed and symmetrical generally U-shaped branch portions forming a rectangle disposed in said first waveguide, said rectangle having a first long side integrally connected to said signal receiver portion, a second long side connected to said launch or re-transmitter portion, and a pair of opposed short sides integrally connecting said long sides, said first long side and a portion of said second long side being disposed in a single plane along the axis of symmetry of said first waveguide and perpendicular to the plane in which said signal receiver portion is disposed, wherein each of said short sides of said rectangle and a corresponding end portion of said second long side form symmetrically disposed winglets in a second and third planes at an angle to said single plane.

[illegible]

DEVICE AND METHOD FOR SEPARATING SHORT-WAVELENGTH AND LONG-WAVELENGTH SIGNALS

Vernon W. Ramsey, Huntsville, Ala., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1986, Ser. No. 913,464

Int. Cl.⁴ H01Q *13/00;* H01P *1/213*

U.S. Cl. 343—786 25 Claims

1. A device for channeling into separate paths a long-wavelength signal and a short-wavelength signal, said device comprising:

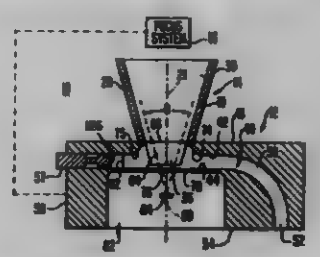
means for collecting the short and long-wavelength signals at a common area of focus, said collecting means including means for focusing the short-wavelength signal into a ray cone having a central axis extending in a first direction;

waveguide means for propagating the long-wavelength signal in a second direction extending at an angle to the first direction;

means for passing both the focused short-wavelength signal and the long-wavelength signal in said first direction into said waveguide means;

means for deflecting the long-wavelength signal to propagate through said waveguide means in said second direction and for passing the ray cone in said first direction to converge through the waveguide means at a point of convergence along the central axis external of said waveguide means; and

means for detecting the short-wavelength signal substantially at the point of convergence.



[illegible]

METHOD AND APPARATUS FOR RECORDING AN IMAGE

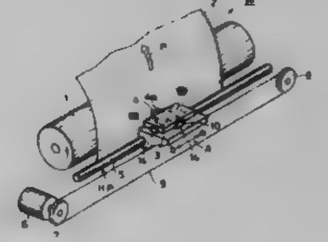
Keiji Nagira, and Shoji Kanemura, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 20, 1986, Ser. No. 920,797

Claims priority, application Japan, Oct. 22, 1985, 60-235839; Oct. 22, 1985, 60-235840; Oct. 23, 1985, 60-236956; Nov. 7, 1985, 60-249591; Nov. 25, 1985, 60-264189

Int. Cl.⁴ G01D *9/00*

U.S. Cl. 346—1.1 4 Claims



4. A method of thermal recording on a recording medium, using a reusable ribbon which is reusable for producing multiple recordings by transferring the ink of the reusable ribbon onto the recording medium, wherein N is defined as the number of recording operations that can be performed with the same portion of the reusable ribbon, wherein said method comprises the steps of:

storing data corresponding to the number N; and

winding said reusable ribbon by a length corresponding to M/N of a line when M lines on the recording medium are recorded by the reusable ribbon by both-way recording when M is less than N.

[illegible]

LASER PRINTER INTERFACE CIRCUIT

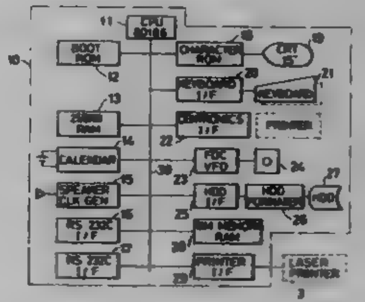
Tsutomu Sato, Yokohama; Noboru Murayama, Machida, and Hiroshi Shimura, Kawasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Mar. 7, 1986, Ser. No. 837,542

Claims priority, application Japan, Mar. 7, 1985, 60-45620

Int. Cl.⁴ G01D *9/00;* H04N *1/21;* G06F *9/00;* H04Q *9/00*

U.S. Cl. 346—33 R 8 Claims



1. A printer interface circuit for interfacing a host system which generates a first clock signal and a printer which generates a second clock signal, wherein said printer is outside of said host system but is connected thereto, comprising:

first storing means in said host system for storing data to be printed and second storing means also in said host system, said data to be printed being transferred from said second into said first storing means in said host system in accordance with said first clock signal; and

transferring means which also is a part of said host system, for transferring said data thus stored in said first storing means to said printer at a rate controlled by said second clock signal, which is generated by said printer, said host system being coupled with said printer to receive said second clock signal therefrom and to transfer data from said first storing means thereto.

[illegible]

LASER PRINTING APPARATUS WITH DEVICE FOR COMBINING A PLURALITY OF OPTICAL BEAMS PROVIDED WITH AN INTEGRAL-ORDER WAVE PLATE

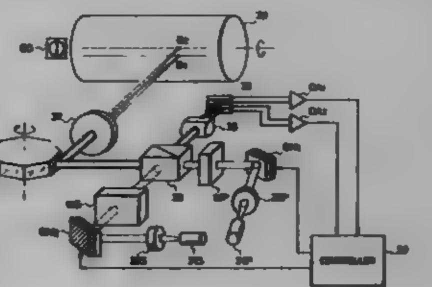
Akira Arimoto, [illegible], and Susumu Saito, Hitachi-ouji, both of Japan, assignors to Hitachi Koki Co., Ltd. and Hitachi Ltd., both of Tokyo, Japan

Filed Aug. 4, 1987, Ser. No. 81,440

Claims priority, application Japan, Aug. 8, 1986, 61-185106

Int. Cl.⁴ G01D *9/42;* H04N *1/21*

U.S. Cl. 346—108 4 Claims



1. A laser printing apparatus with device for combining a plurality of optical beam provided with an integral-order wave plate comprising:

optical devices polarizing a plurality of said optical beams for scanning respectively.

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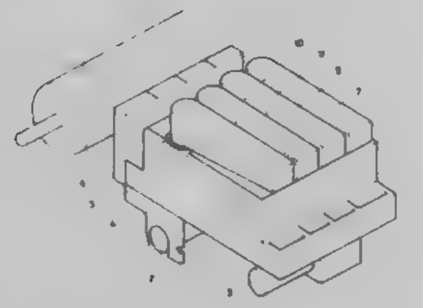
a drum for a printer scanned in a synchronous and parallel manner by spots of said polarized optical beams in a plurality, and
an optical element transmitting the bundle of rays of first linearly-polarized light while reflecting the bundle of rays of second linearly-polarized light, out of the bundles of rays of said first and second linearly-polarized having linear polarizations lights intersecting each other perpendicularly and
in which the aforesaid optical beams in a plurality are combined by the aforesaid optical element and outputted therefrom to form spots of the optical beams for the printer,
an optical beam printer apparatus using a means of combining a plurality of beams provided with integral-order wave plates, which has a construction wherein each of the integral-order wave plates is interposed in a position of an optical path along which an output light of each of sources of emission of said optical beams in a plurality is inputted to the aforesaid optical element.

4,760,408
COLOR INK JET SYSTEM PRINTER

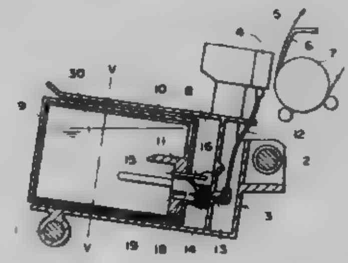
Yoshio Kanayama, Nabari, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 488,827, Apr. 26, 1983, abandoned.
This application Dec. 29, 1986, Ser. No. 947,421
Claims priority, application Japan, Apr. 29, 1982, 57-71690
Int. Cl.^{4} G01D *15/18*; B41J *3/20*
U.S. Cl. 346—140 R 1 Claim



1. A color ink jet system printer comprising:
a carriage;
a record receiving member;
shift means for shifting at least one of said carriage or record receiving member in a lateral direction while a printing operation is conducted;
said carriage including a printer head having a plurality of orifices for emitting ink droplets of a corresponding plurality of different colors, said orifices being aligned diagonally with respect to said lateral direction with a predetermined distance in said lateral direction therebetween;
ink liquid supply means for supplying ink liquid of said different colors to said respective orifices;
print control means including ink droplet emitting means for emitting said ink droplets separately provided for each of said orifices;
drive means comprising a vibrator driver circuit including a vibrator associated with each ink droplet emitting means for energizing said respective ink droplet emitting means at predetermined times determined by said predetermined distance and a velocity of said carriage or recrod receiving means in said lateral direction for conducting a multicolor printing operation by said ink droplets emitted from said plurality of orifices;
print data memory means having a plurality of memory areas, each area corresponding to one of said plurality of orifices; and
a shift register associated with each orifice of said printer head, at least one shift register being associated with each said memory area for separately transferring print data from each of said memory areas to each corresponding driver means for energizing each corresponding ink droplet emitting means at selected times, wherein each vibrator is responsive to data from a corresponding shift register.

4,760,409
INK SUPPLY DEVICE IN AN INK JET RECORDING APPARATUS

Takehiko Kiyohara, Zama, and Hideo Fukazawa, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 29, 1987, Ser. No. 79,005
Claims priority, application Japan, Jul. 31, 1986, 61-180565
Int. Cl.^{4} G01D *15/16*
U.S. Cl. 346—140 R 18 Claims

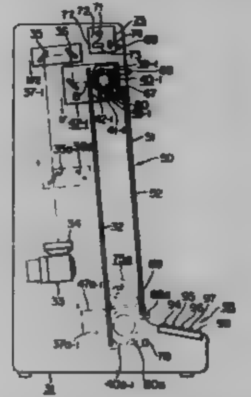


1. An ink supply apparatus for an ink jet recording apparatus, comprising:
an ink bag made of a flexible material; and
a plug member provided for leading out ink in said ink bag and attached to said ink bag in sealing manner to a hermetically sealed ink bag, a concaved hole being provided at the side plug member which is faced to the inside of said bag, a sealing surface of said plug member with respect to said bag being formed to be a boot-like shape, and a reinforcing portion being formed for bridging the inside of said concaved hole.

4,760,410
IMAGE DISPLAY DEVICE

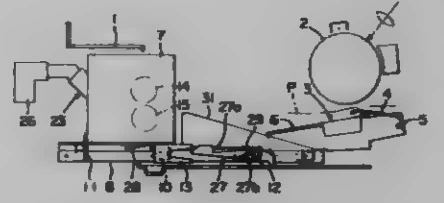
Hirotoshi Kishi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 641,023, Aug. 15, 1984, abandoned.
This application Jan. 28, 1987, Ser. No. 6,278
Claims priority, application Japan, Aug. 22, 1983, 58-151610; Dec. 2, 1983, [illegible]
Int. Cl.^{4} G01D *15/06*
U.S. Cl. 346—153.1 22 Claims

1. An image display device comprising:
an image bearing member fixed and formed in a shape of a plate;
means for forming an erasable and visible image on said image bearing member in response to an electric signal, wherein said image forming means includes developing means having developer and wherein said visible image is an image developed by said developing means;
a display station for visually displaying the image formed on said image bearing member; and
reading means for reading the visible image on said image bearing member and producing an image signal, wherein said reading means moves along said image bearing member in order to read said visible image and wherein said reading means operates independently of the operation of said image forming means.



4,760,411
ELECTROSTATIC RECORDING APPARATUS

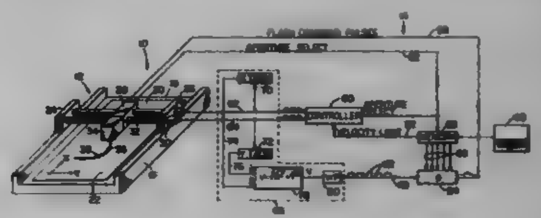
Atsuo Ohmura; Hiroyuki Haneda; Masayuki [illegible]; [illegible] Sato, and Mitsuru Kawano, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Filed Aug. 1, 1986, Ser. No. [illegible]
Claims priority, application Japan, Aug. 6, 1985, [illegible]; Jan. 16, 1986, 61-7008; Jan. 16, 1986, 61-7009; Mar. 5, 1986, [illegible]
Int. Cl.^{4} G01D *15/10*
U.S. Cl. 346—160.1 11 Claims



1. In an electrostatic recording apparatus comprising:
an image retainer, means for forming a latent electrostatic image on said image retainer, means for developing said latent electrostatic image, means for transferring the developed image on said image retainer to a recording paper, and means for separating the recording paper,
wherein said transferring means and said separation means form a transferring unit for fixing the image to said recording paper. said transferring unit comprising a fixing roller and a pressure roller,
the improvement which comprises means for withdrawing the fixing means from th electrostatic recording apparatus along a paper path and means for interlocking the fixing means with the transferring unit to displace said transferring unit apart from said image retainer when said fixing means is withdrawn.

4,760,412
APPARATUS AND METHOD FOR EXPOSING LINES ON A PHOTOSENSITIVE SURFACE

John E. Murzyn, Vernon, Conn., assignor to Gerber Scientific Instrument Company, Inc., South Windsor, Conn.
Filed Jul. 25, 1986, Ser. No. [illegible]
Int. Cl.^{4} [illegible]
U.S. Cl. 354—4 13 Claims



1. An apparatus for exposing lines on a photosensitive surface by flashes of light, said apparatus comprising:
means for supporting material having a photosensitive surface;
a photohead having a flash lamp and a plurality of apertures of different size any selected one of which apertures may be positioned between said flash lamp and said photosensitive surface to cause said flash lamp when flashed to expose a spot on said surface having a size directly related to the size of said selected aperture,
means for selecting any one of said plurality of apertures to be used with said lamp to expose spots on said surface,
drive means for moving said material and said photohead relative to one another to cause said photohead to trace a line to be exposed on said photosensitive surface,
means for producing a speed signal having a value directly related to the speed at which said photosensitive surface and photohead are driven relative to one another by said drive means,
a divider for dividing said speed signal by a division factor to produce a flash rate command signal,
means for flashing said flash lamp at a rate directly related to said flash rate command signal, and,
means for associating a plurality of division factors with said apertures on a one-to-one basis, which division factors are independent of one another and may vary from aperture to aperture, and for using with said divider the division factor associated with the aperture selected by said selecting means.

4,760,413
PHOTOGRAPHIC CAMERA

Nobuyuki Taniguchi, Nishinomiya; Takeo Hoda, Kawachinagano; Yoshiaki Hata, Nishinomiya; Manabu Inoue, Kobe; Yoshinobu Kudo, Sakai, and Hiroshi Ueda, Toyokawa, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. [illegible], Nov. 18, 1986, Pat. No. [illegible].
This application Nov. 4, 1987, Ser. No. 116,532
Claims priority, application Japan, Nov. 20, 1985, [illegible]; Nov. 20, 1985, [illegible]; Dec. 11, 1985, [illegible]
Int. Cl.^{4} G03B *17/24*, *15/03*
U.S. Cl. 354—106 1 Claim

1. A photographic camera comprising:
an object lens;
means for selecting a real focal length photographing mode in which a normal range in a frame of a film will be printed on a photographing paper and a pseudo focal length photographing mode in which a range narrower than the normal range in a frame of the film will be printed on a photographing paper;
means for emitting flash light to illuminating an object to be photographed, the flash light emitting means having a

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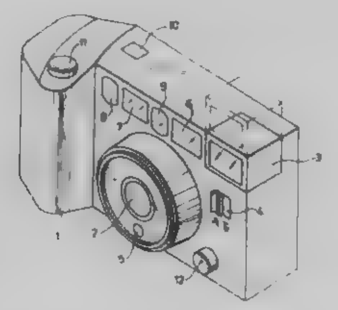
flash light emitting portion from which the flash light is emitted; and

means for controlling a distance from an optical axis of the objective lens to the flash light emitting portion of the flash light emitting means so that the distance when the pseudo focal length photographing mode is selected, is extended in comparison with the distance when the real focal length photographing mode is selected.



4,760,414
ELECTRONIC CIRCUITRY FOR PHOTOGRAPHIC CAMERA

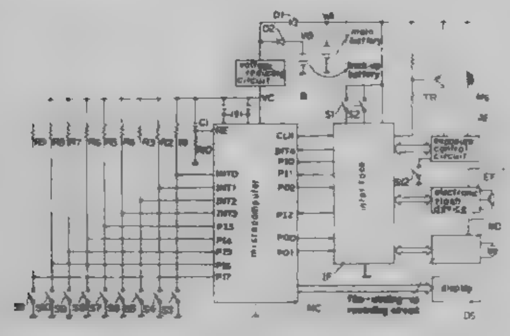
Shinji Tominaga, Osaka; Kouji Yamamoto, and Akira Yamanaka, both of Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 25, 1986, Ser. No. 934,637

Claims priority, application Japan, Nov. 26, 1985, 60-181763[U]; Feb. 12, 1986, 61-18996[U]; Feb. 12, 1986, 61-[illegible][U]

Int. Cl.⁴ G03B *15/05*

U.S. Cl. 354—127.1 7 Claims



1. An electronic circuitry for a photographic camera, comprising:

functioning circuit means for carrying out various functions of said photographic camera;

an electronic flash circuit including at least a voltage boosting circuit and a capacitor which charges the output of said voltage boosting circuit for flashing;

a control circuit for controlling the operations of said functioning circuit means by outputting clock pulses to said functioning circuit means and for detecting whether said electronic flash circuit is in a voltage boosting operation;

a signal line for transferring said clock pulses from said control circuit to said functioning circuit means; and

power supply means for commonly supplying power to said functioning circuit means, said electronic flashing circuit and said control circuit;

wherein said control circuit is constructed to inhibit output of the clock pulses to said functioning circuit means while said electronic flash circuit is in a voltage boosting operation.

4,760,415
FILM ADVANCE DEVICE FOR SURVEILLANCE CAMERAS

John G. Alexander, Richmond, Va., assignor to Geotel, Inc., Richmond, Va.

Filed Nov. 6, 1987, Ser. No. 117,811

Int. Cl.⁴ G03B *1/12, 9/10*

U.S. Cl. 354—173.1 7 Claims

1. A camera driven by a motor for photographing a sequence of images upon a strip of photographic film, comprising:

(a) a rotating shutter, said shutter operably connected to said motor;

(b) a rotating beater wheel, said beater wheel being drivenly connected to said motor and having a pin-like projection; and

(c) a rotatable spoke wheel, said spoke wheel having an axial film driving shaft and a plurality of spokes, said shaft operably engageable to advance said film and said spokes being successively intermittently engaged by said projection, wherein said film is intermittently advanced by intermittent rotation of said spoke wheel and said shutter exposes said film while said film is stationary.

4,760,416
WET PROCESSING ARRANGEMENT FOR PHOTOSENSITIVE ARTICLES

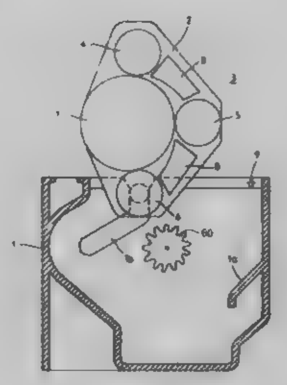
Wilfried Hehn, Munich, Fed. Rep. of Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 1, 1986, Ser. No. 913,949

Claims priority, application Fed. Rep. of Germany, Oct. 16, [illegible]

Int. Cl.⁴ G03D *3/06, 3/08;* B65H *20/02*

U.S. Cl. 354—320 32 Claims



1. An arrangement for wet processing photosensitive articles, comprising a container for a processing bath; a rack mountable in said container and including a pair of cooperating rollers defining a nip for guiding photosensitive articles; and means for positively eliminating air bubbles which tend to form in the region of said nip upon entry of said rollers into a bath accommodated by said container.

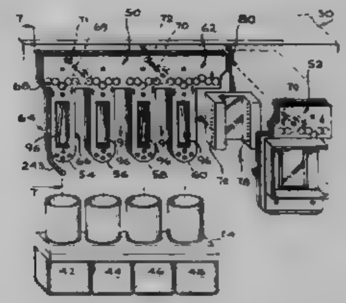
4,760,417
ROLL FILM PROCESSOR

Ernest Zwettler, Santa Monica, and Michael Hersch, Rancho Palos Verdes, both of Calif., assignors to Houston Fearless 76, Inc., Carson, Calif.

Filed Apr. 28, 1986, Ser. No. 856,702

Int. Cl.⁴ G03D *3/13*

U.S. Cl. 354—321 17 Claims



1. A roll film processor for processing film having two edges and wound into a roll, comprising:

a plurality of substantially aligned tanks, each for containing a liquid; and

a film drive module defining an essentially serpentine film path including successive "U" shaped sections depending from a common frame member, each of said "V" shaped sections intended to extend into a different one of said tanks for subjecting said roll film to said liquid in said tank and including continuous opposed "V" shaped grooves defining a track for guiding said roll film by said two edges along said film path including a down path leg for carrying said film into said tank and an up path leg for carrying said film out of said tank, said film drive module removable as a unit from said plurality of substantially aligned tanks and including a film mover means positioned entirely outside said liquid for moving said film.

4,760,418
FLASH PHOTOGRAPHING SYSTEM

Akira Ishizaki, and Yasuo Suda, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1986, Ser. No. 907,856

Claims priority, application Japan, Sep. 19, 1985, 60-207031

Int. Cl.⁴ G03B *3/00, 15/05*

U.S. Cl. 354—403 7 Claims

1. A camera system comprising:

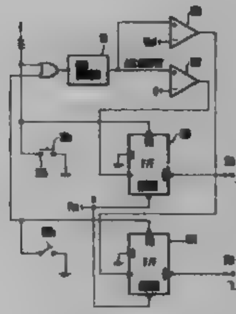
(a) a camera having

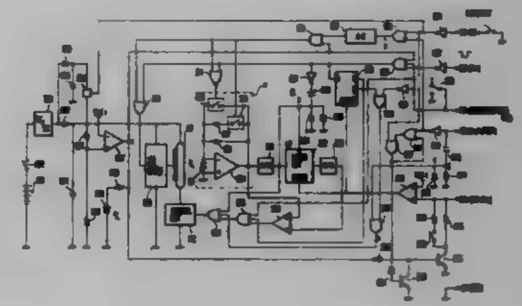
(I) an AF sensor arranged to receive a light flux coming through a lens for the purpose of automatic focusing and producing an output indicative of such received light flux, and

(II) means operable to select a pre-flasing mode or a main flashing mode for said camera; and

(b) a flash unit including

(I) circuit means for establishing a flashing light quantity for said flash unit in said main flashing mode in accordance with the output of said AF sensor produced on the basis of light reflected to said AF sensor from an object to be photographed as a result of flashing occurring in said pre-flashing mode.





4,760,419
DISTANCE MEASURING APPARATUS

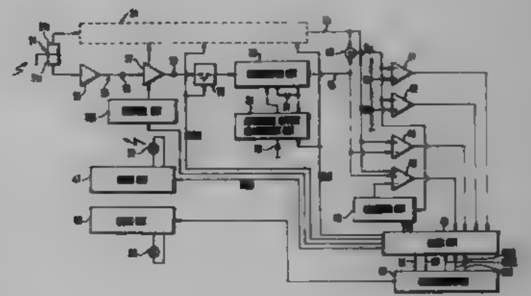
Akihiro Fujiwara, Kanagawa; Takashi Amikura; Masamichi Toyama, both of Tokyo; Kouichi Ueda, Kanagawa, and Susumu Kozuki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. [illegible], 1986, Ser. No. [illegible]

Claims priority, application Japan, Dec. 26, 1985, 60-[illegible]; Dec. 26, 1985, 60-295160; Dec. 26, 1985, 60-295161; Dec. 26, 1985, 60-295162; Jan. [illegible], 1986, 61-[illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 354—403 5 Claims



1. A distance measuring apparatus arranged to emit light toward an object and measure the distance of said object on the basis of light reflected by said object, comprising:

(a) receiving means having at least two receiving areas for receiving said reflected light;

(b) first processing means for calculating a mean value of the outputs from said receiving areas of said receiving means;

(c) difference detecting means for detecting the output dif-

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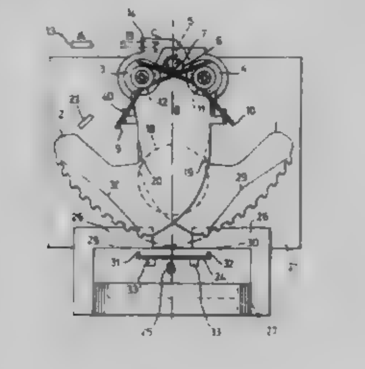
ference between said mean value obtained by said first processing means and the output of either of said receiving areas; and

(d) second processing means for performing operations on information relative to the distance to said object on the basis of a signal detected by said difference detecting means.

4,760,420

SHUTTER MECHANISM FOR A CAMERA

Chiu K. Lam, North Point, Hong Kong, assignor to Famous Instrument Limited, Hong Kong
Filed Aug. 28, 1987, Ser. No. 87,207
Claims priority, application United Kingdom, Aug. 21, 1986, 8620387
Int. Cl.⁴ G03B *7/08, 9/08*
U.S. Cl. 354—440 17 Claims



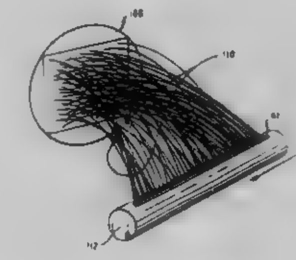
1. A camera having a shutter system comprising a plurality of plates which are coupled together to move in unison, the plates being biassed to an initial position in which they overlap in a region forming a barrier to light entering the camera through a lens thereof, means for striking a said plate to cause the plates to move slidingly relative to one another against the biassing means to an open position where the plates form between them an aperture for exposing a film in the camera to light entering through the lens, and aperture control means for stopping and holding the plates in a selected one of a plurality of different open positions which define different aperture sizes and for a controlled time period to expose the film and then releasing the plates, the plates sliding back towards the initial position under the action of the biassing means to close the aperture.

4,760,421

GRAPHIC PRINTING DEVICE INCLUDING A FIBER OPTIC BUNDLE WITH ELECTRONIC MEANS FOR PROVIDING COHERENCE

George D. Margolin, Newport Beach, Calif., assignor to Photon Devices, Ltd., Newport Beach, Calif.
Continuation of Ser. No. 581,085, Feb. 17, 1984, Pat. No. 4,674,834. This application Oct. 24, 1986, Ser. No. 922,731
Int. Cl.⁴ G03B *27/00*; G02B *6/06*; G09G *1/02*
U.S. Cl. 355—1 13 Claims

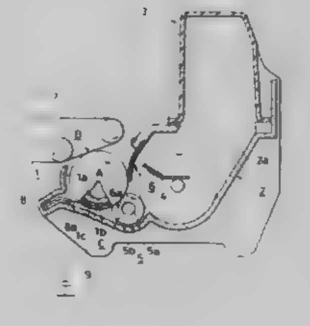
1. An electronic printer apparatus, said apparatus including a fiber optic bundle having first and second ends, arranged in first and second faces respectively, means for constraining the fibers of said first end in a linear geometry, means for constraining the fibers of said second end in a second geometry, means coupled to said first end for moving an electrostatic medium thereby, and means for directing a beam of radiation at selected ones of said fibers of said second end, said means for directing comprising means for directing a beam of radiation at a selected position in said second face and means for moving said beam from one selected position to a next selected position in a succession of preselected positions in said second face, and control means for controlling said means for moving, said control means comprising permanent memory means for storing the preselected sequence of said succession of selected positions determined during a prior initialization procedure.

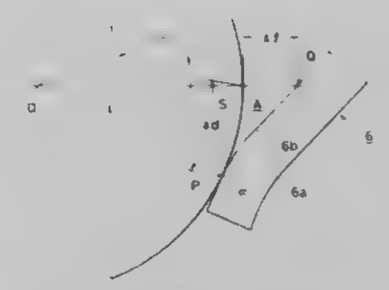


4,760,422

DEVELOPING DEVICE USING SINGLE COMPONENT TONER

Ryuban Seimiya, Hino; Noriyoshi Tarumi, Hachioji; Hiromi Demizu, Yokohama; Makoto Obu, Tokyo, and Hidetoshi Yano, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
Filed Jan. 14, 1986, Ser. No. 818,793
Claims priority, application Japan, Jan. 16, 1985, 60-4045; Jan. 16, 1985, 60-2321; Jan. 24, 1985, 60-9821[U]; Jan. 28, 1985, 60-15201; Jan. 31, 1985, 60-17180; Jan. 31, 1985, 60-17183
Int. Cl.⁴ G03G *15/08*
U.S. Cl. 355—3 DD 10 Claims





1. A device for developing an electrostatic latent image, comprising:

storing means for storing a quantity of a developer;

transporting means for transporting said developer along a predetermined path which passes thorugh a developing region where said latent image is developed by said developer, said predetermined path including a curved region having a predetermined radius of curvature;

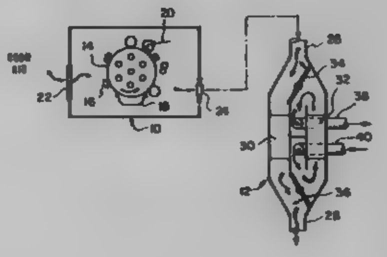
supplying means for supplying said developer stored in said storing means to said transporting means to thereby cause said developer to be attracted to said transporting means electrostatically;

a doctor blade located downstream of said supplying means with respect to a direction of transporting said developer by said transporting means along said predetermined path, wherein said doctor blade is pressed against said transporting means at said curved region and extends in a direction opposite to the transporting direction of said developer at a contact point between said doctor blade and said transporting means, and wherein when said radius of curvature is at least 3 mm, said doctor blade is arranged such that a separating distance between said transporting means and said blade along a straight line normal to a tangential line drawn at a point 1 mm downstream from said contact point between said transporting means and said blade is at least 0.3 mm.

4,760,423

APPARATUS AND METHOD FOR REDUCING HYDROCARBON EMISSIONS FROM A LIQUID-BASED ELECTROPHOTOGRAPHIC COPYING MACHINE

Bruce E. Holtje, Castle Creek; David J. Keith, Endicott; Ming L. Fe, Ithica, all of N.Y., and James M. Halbert, Kaufman, Tex., assignors to Savin Corporation, Stamford, Conn.
Filed Mar. 12, 1987, Ser. No. 25,124
Int. Cl.⁴ G03G *15/00*
U.S. Cl. 355—3 R 10 Claims



1. For use with an electrophotographic copy machine comprising means for creating an electrostatic image of an original document and liquid toner means for transferring said image to a copy sheet, emission control means comprising:

emission collection means for collecting excess hydrocarbon vapors generated by said machine,

an activated charcoal bed for receiving said vapors and adsorbing the hydrocarbons therefrom during an adsorption cycle,

means for enabling passage of said vapors to said bed during said adsorption cycle,

air intake means for collecting a flow of regenerating air, heating said air to a temperature ranging between about 100° C. and 200° C., and delivering said air to said bed during a desorption cycle,

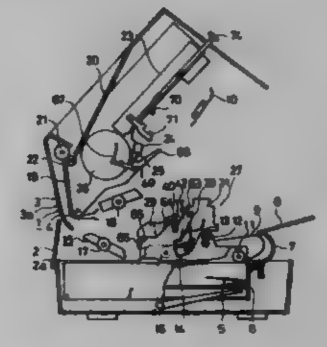
temperature control means for controlling said temperature to rise to said range and remain within said range for a period of time between about 1 hour and 8 hours to cause desorption of said hydrocarbons from said bed into said air at a relatively uniform rate, and

hydrocarbon removal means for receiving said air in its hydrocarbon laden state and removing said hydrocarbons therefrom.

4,760,424

MULTIPLY SEPARABLE COPIER AND DEVELOPING APPARATUS

Harutaro Ohba, and Seiji Sugimura, both of Shizuoka, Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan
Filed Jan. 20, 1987, Ser. No. 4,409
Claims priority, application Japan, Jan. 24, 1986, 61-13247; Jan. 24, 1986, 61-[illegible]
Int. Cl.⁴ G03G *15/00, 15/20*
U.S. Cl. 355—3 R 30 Claims



1. An electrostatic photographic apparatus, comprising:

a lower unit which at least contains therein a cassette case in which paper is held in a layered condition;

an upper unit connected for pivotal motion around an end of said lower unit and having at least a paper receiver thereon;

a developing unit including a holding member on which at least a photosensitive member, a developer and a cleaning mechanism are mounted;

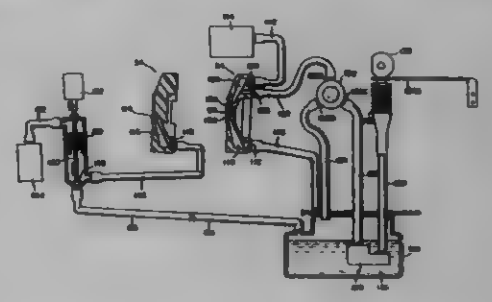
supporting means provided on said lower unit for positioning said developing unit and for removably supporting said developing unit in a vertical direction thereon; and

pressing means provided on said upper unit for pressing said developing unit against said supporting means when said upper unit is closed to said lower unit.

4,760,425

DEVELOPER SUPPLY APPARATUS FOR ELECTROPHOTOGRAPHIC SYSTEM

[illegible] Ohtsuka, Kanagawa, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 23, 1986, Ser. No. [illegible]
Claims priority, application Japan, Dec. 23, 1985, 60-289871
Int. Cl.⁴ G03G *15/10*; G03D *3/06*
U.S. Cl. 355—10 18 Claims



1. A developer supply apparatus for a processing head which subjects an electrophotographic film to various kinds of processing such as development, said apparatus comprising:

(a) a bellows whose internal volume is variable;

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(b) driving means for expanding and contracting said bellows;
(c) a developer supply source;
(d) suction means having a first check valve for allowing the developer to be sucked into said suction means from said developer supply source when said bellows is contracted, for preventing the developer from flowing back to said developer supply source when said bellows is expanded, to suck in a developer from said developer supply source when said bellows is contracted, and to pump out the sucked developer when said bellows is expanded; and
(e) a swtiching valve which is selectively set in one of, a first position for delivering the developer pumped out from said suction means to said processing head, and a second position for returning the developer to said developer supply source, whereby, when said valve is in said first position, the developer is forcedly delivered to said processing head, whereas when said valve is in said second position, the developer is stirred to maintain it in a state wherein components of the developer are mixed uniformly.

4,760,426

IMAGE RECORDING APPARATUS

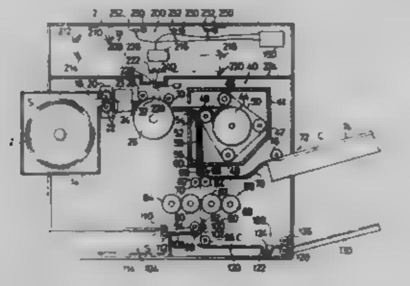
Isao Taniguchi; Minoru Ishikawa, and Akihiko Nagumo, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 17, 1986, Ser. No. 942,654

Claims priority, application Japan, Dec. 20, 1985, 60-287492; Dec. 23, 1985, 60-289703; Jan. 17, 1986, 61-7487; Jan. 20, 1986, 61-9724; Jan. 29, 1986, 61-17562; Mar. 10, 1986, 61-51896

Int. Cl.^{4} G03G *15/01*

U.S. Cl. 355—27 21 Claims



1. An image recording apparatus which makes use of a photosensitive and pressure-sensitive thermally developable medium having a carrier and a photosensitive substance applied to the surface of said carrier that is capable of developing a latent image thereon by application of heat and stabilizing the developed image by application of pressure, at least part of said substance being contained in common microcapsules, said apparatus comprising:
exposure means for exposing said photosensitive and pressure sensitive developable medium to an image thus forming a latent image on the surface of said photosensitive and pressure sensitive developable medium;
heating developing means for setting the portion of said photosensitive and pressure-sensitive developable medium carrying said latent image so as to produce a developed image; and
transferring means for superposing an image receiving sheet member onto said photosensitive and pressure sensitive developable medium and for pressurizing said image receiving sheet member and said photosensitive and pressure sensitive developable medium together so as to stabilize and transfer the developed image onto said image receiving sheet member through rupture of said common microcapsules under pressure.

4,760,427

EXPOSING APPARATUS FOR COLOR COPIER

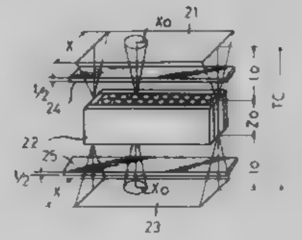
Hajime Oyama, Ichikawa, and Nobuyuki Sato, Yokohama, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 4, 1987, Ser. No. 81,315

Claims priority, application Japan, Aug. 4, 1986, 61-118896[U]; Jul. 15, 1987, 62-174906

Int. Cl.^{4} G03B *27/32, 27/52*

U.S. Cl. 355—32 5 Claims



1. An exposing apparatus for use in a color copier in which reflection light from an original image mounted on an original mounting plate thereof and illuminated with white light is passed through three color separation filters which are inserted, in sequence, into an optical path of a common focussing system of said copier, and color-separated images from said filters are focussed in sequence on a common image plane, said exposing apparatus being characterized by including transparent flat plates having thicknesses suitable to correct optical path lengths for said respective color-separated light such that effective values of focussing optical path lengths of a focussing element of said focussing system for the respective color-separated lights become equal to a distance of said focussing system between a plane of the original and said image plane, said transparent flat plates being adapted to be inserted into said focussing optical path in sequence in synchronism with said sequential insertion of said color separating filters into said optical path.

4,760,428

IMAGE DATA RECORDING MEDIUM AND APPARATUS FOR DETERMINING TAPE POSITION OF THE SAME

Izumi Watanabe, and Keiichi Yamana, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

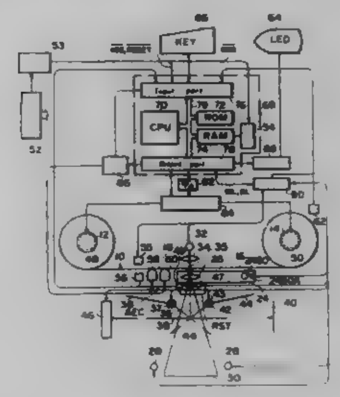
Filed Dec. 3, 1986, Ser. No. 937,632

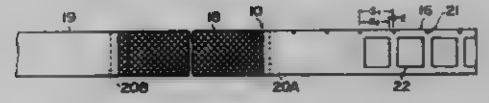
Claims priority, application Japan, Dec. 4, 1985, 60-273009; Dec. 4, 1985, 60-273010

Int. Cl.^{4} G03B *27/52*

U.S. Cl. 355—40 14 Claims

1. A tape position determining apparatus comprising:
a photosensor disposed in opposing relation to an image data recording medium composed of a transparent leader tape, an opaque magnetic tape for recording frame data and a transparent continuous tape for recording a frame image which are spliced together successively in that order; and
position determining means for discriminating between starting and terminating ends of said magnetic tape on the basis of a change in a signal obtained from said photosensor when said recording medium is moved in its longitudinal direction and on the basis of direction of movement of said recording medium.





4,760,429

HIGH SPEED RETICLE CHANGE SYSTEM

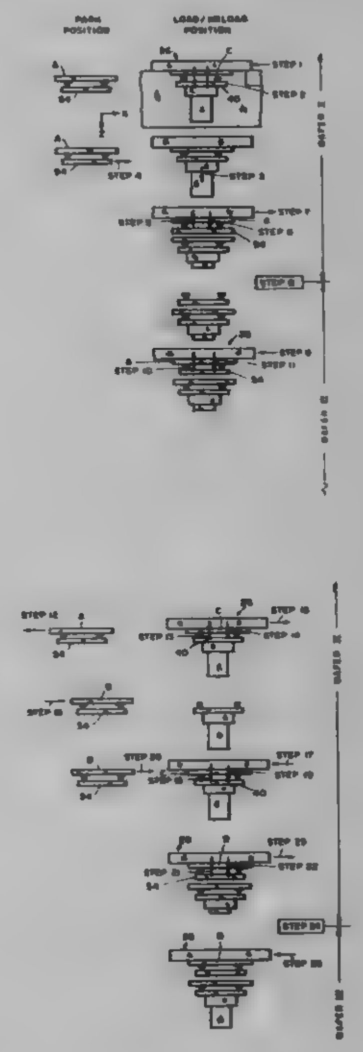
Geoffrey O'Connor, Fairfield, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Nov. 5, 1986, Ser. No. 927,202

Int. Cl.^{4} G03B *27/32*

U.S. Cl. 355—77 3 Claims

1. In the method of sequentially loading three reticles onto an exposure stage at a loading location for subsequently exposing each of a plurality of semiconductor wafers to each of said reticles, wherein one of said reticles is a circuit reticle (C) having a substantially longer exposure time than the remaining two reticles and wherein said remaining two reticles (A,B) are normally stored in a reticle library relatively far removed from the loading location, the improvement comprising:
positioning reticle C in a holding location closely adjacent the loading location;
positioning reticle A on the exposure stage;
establishing a park position intermediate the library and the loading location;
exposing a wafer with reticle A;
removing reticle A from the exposure stage;
positioning reticle C on the exposure stage;
exposing said wafer with reticle C;
during the reticle C exposure period, moving reticle A to the library and removing reticle B from the library to the park position;
moving reticle C to its holding location;
positioning reticle B on the exposure stage;
exposing said wafer with reticle B;
replacing the exposed wafer with an unexposed wafer and continuing the exposure cycle in the order BCA-ACB-BCA-ACB.



4,760,430

SEMICONDUCTOR DEVICE AND METHOD FOR PRODUCING A FAR INFRARED AND/OR MICROWAVE RADIATION SOURCE UTILIZING RADIATIVE TUNNELLING TRANSITIONS

Darryl D. Coon, and Hui C. Liu, both of Pittsburgh, Pa., assignors to University of Pittsburgh, Pittsburgh, Pa.

Filed Apr. 9, 1986, Ser. No. 849,813

Int. Cl.^{4} [illegible]

U.S. Cl. 357—17 19 Claims

1. A semiconductor heterostructure device characterized by having an increased radiative tunnelling current, a decreased nonradiative tunnelling current and improved coupling of the radiative tunnelling current to an electromagnetic field in the region between doped conductive layers of the device comprising:
(a) a first conductive contact layer comprising a semiconductor including an N dopant material;
(b) a barrier layer in juxtaposition to the first conductive contact layer comprising a semiconductor of a different material from said semiconductor of the first layer to

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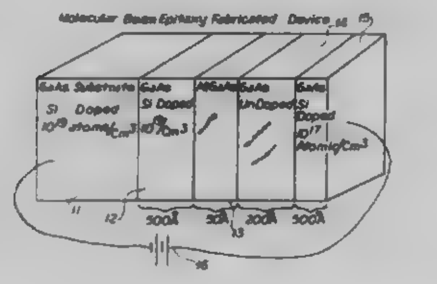
decrease the nonradiative tunnelling current and increase the radiative tunnelling current;

(c) a non-barrier layer in juxtaposition to the barrier layer comprising an undoped, semiconductor material to provide improved coupling of the radiative tunnelling current to the electromagnetic field;



(d) a second conductive contact layer in juxtaposition to the non-barrier layer comprising a semiconductor including an N dopant material; and

(e) means for applying a bias voltage potential across the device to generate photon emissions.

4,760,431
GATE TURN-OFF THYRISTOR WITH INDEPENDENT TURN-ON/OFF CONTROLLING TRANSISTORS

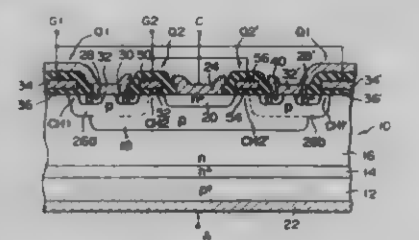
Akio Nakagawa, Hiratsuka, and Takashi Shinohe, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 30, 1986, Ser. No. 913,753

Claims priority, application Japan, Sep. 30, 1985, 60-214578; Apr. 24, 1986, 61-95418

Int. Cl.⁴ H01L *29/78*

U.S. Cl. 357—234 4 Claims



1. A gate turn-off thyristor comprising:

(a) a semiconductor substrate of a first conductivity type serving as a first base layer;

(B) a first emitter layer and a second base layer both of a seocnd conducitvity type, which are formed on opposing surfaces of said substrate;

(c) a second emitter layer of the first conductivity type formed in said second base layer;

(d) a first metal oxide semiconductor field effect transistor of a certain channel conductivity type for turning on said thyristor, said first transistor comprising,

a first semiconductor layer of the first conductivity type formed in said second base layer to serve as a source of said first transistor and to define a surface portion of said second base layer positioned between itself and said first base layer as a channel region of said first transistor, [illegible]

a first gate electrode layer insulatively provided above said first base layer to cover said channel region;

(e) a second metal oxide semiconductor field effect transistor of the same channel conductivity type as said first transistor, for short-circuiting said first base layer and said second emitter layer with each other thereby to turn off said thyristor, said second transistor being provided in said second base layer to be adjacent to said first transistor, said second transistor comprising,

a second semiconductor layer of the first conductivity type formed in said second base layer to serve as a drain of said second transistor, said second semiconductor layer defining a surface portion of said second base layer positioned between itself and said second emitter layer as a channel region of said second transistor, and

a second gate electrode layer insulatively provided above said channel region of said second transistor; and

(f) a source electrode layer formed on said second base layer, for causing said source and said drain to be electrically conducted together with said second base layer, whereby said source electrode layer serves as an amplifying gate electrode of said first transistor, so that a source current of said first transistor acts as a base current of said thyristor to improve a gate sensitivity thereof;

wherein said second base layer comprises,

an additional semiconductor layer of the second conductivity type formed in said substrate to overlap with said second base layer, said additional layer having a diffusion depth smaller than that of said second base layer, said first semiconductor layer being formed in said additional layer in such a manner that said channel region of said first transistor is defined in said additional layer to have a smaller diffusion depth than that of said channel region of said second transistor, and

said first and second semiconductor layers are formed in said additional layer.

4,760,432
THYRISTOR HAVING CONTROLLABLE EMITTER-BASE SHORTS

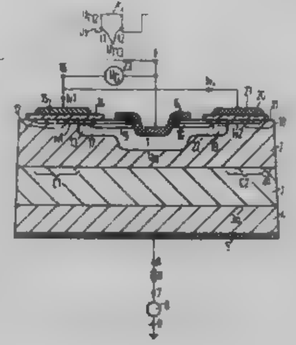
Michael Stoisiek, Ottobrunn; Horst Schmid, and Helmut Strack, both of Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Oct. 28, 1986, Ser. No. 923,867

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1985, 3539097

Int. Cl.⁴ H21L *29/78*

U.S. Cl. 357—23.4 7 Claims



1. A thyristor comprising, a semiconductor body having an n-emitter layer which is contacted by a cathode electrode, a p-base layer adjacent said n-emitter layer, an n-base layer adjacent said p-base layer, a p-emitter layer adjacent said n-base layer, an anode electrode in electrical contact with said p-emitter region, a biasing voltage connected between said cathode and anode electrode, said base layers separated from one another by pn-junctions, at least one first MIS structure serving as a controllable emitter-base short located at the edge of said n-emitter layer, said MIS structure comprising a p-conductive semiconductor region which is inserted into said n-emitter layer, a sub-region of said p-base layer, and said p-conductive semiconductor region formed with a first channel region lying therebetween and formed of an edgeside zone of said n-emitter layer, a first gate over said first channel region and separated from the boundary surface of the semiconductor body by a first insulating layer, said first gate (15) also covers said sub-region (12) of the p-base layer (2) and is insulated therefrom, a first voltage generator (23) connected between said cathode electrode (6) and said first gate (15), said first voltage generator generating a voltage which alternates between first and second voltage values, and said first voltage value lies below the threshold voltage of said first channel region (13); and said second voltage value is close to or exceeds the threshold turn on voltage of said sub-region (12) of said p-base layer and ignition of the thyristor occurs when the change from said first to said second voltage value occurs and the quenching of said thyrister occurs when the change from said second to said first voltage value occurs and the threshold voltage of the sub-region (12) of the p-base layer exceeds the threshold voltage of the first channel region (13).

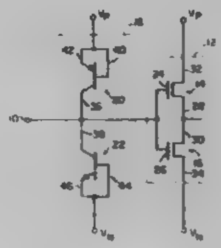
4,760,433
ESD PROTECTION TRANSISTORS

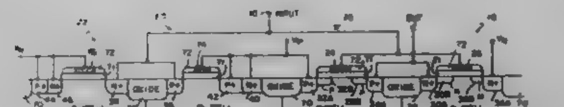
W. Ronald Young; Anthony L. Rivoli, both of Palm Bay, and John T. Gasner, Melbourne, all of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Jan. 31, 1986, Ser. No. 824,870

Int. Cl.⁴ H01L *29/78, 27/02, 31/00;* H03K *3/26*

U.S. Cl. 357—23.13 21 Claims





1. In a protection circuit connected to an input terminal for receiving an input signal and a circuit for protecting said circuit from input signals outside desired limits, the improvement comprising:

a lateral PNP bipolar transistor including P-type emitter and collector regions, laterally spaced in an N-type base region and a first gate over a portion of said N base region between said emitter and collector regions and separated vertically from said base portion by a layer of insulation and laterally from said collector region, said gate, base region and emitter region being connected to a first voltage source and said collector region connected to said input terminal and said protected circuit; and

a lateral NPN bipolar transistor including N-type emitter and collector regions spaced laterally in a P-type base region and a second gate over a portion of said P-base region between said emitter and collector regions and separated vertically from said base portion by a layer of insulation and laterally from said collector region, said second gate, base region and emitter region being connected to a second voltage source and said collector region being connected to said input terminal and said protected circuit.

4,760,434
SEMICONDUCTOR DEVICE WITH PROTECTIVE MEANS AGAINST OVERHEATING

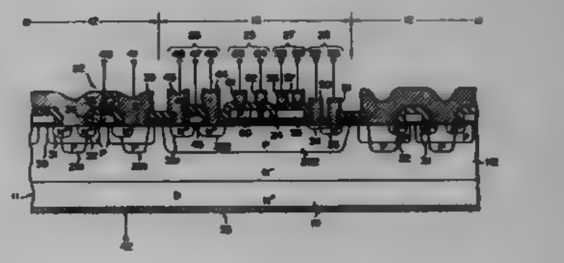
Yukio Tsuzuki, Aichi, and Masami Yamaoka, Anjo, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Nov. [illegible], 1986, Ser. No. [illegible]

Claims priority, application Japan, [illegible]

Int. Cl.⁴ [illegible]

U.S. Cl. 357—23.13 12 Claims



1. A semiconductor device comprising:

a semiconductor substrate having first and second semiconductor regions separate from each other;

an active semiconductor element formed in the first region of said semiconductor substrate;

an insulation film formed on a surface of the substrate corresponding to the second region of said semiconductor substrate;

a heat-sensitive element, formed in a semiconductor layer on said insulation film in such a manner that said heat-sensitive element is separated from said semiconductor substrate, for detecting heat generated by said active semiconductor element formed in the semiconductor substrate, and for outputting a heat detecting signal; and

control means, formed on at least one of said second region and said insulating film, and electrically connected to said heat-sensitive element by a conducting member, for protecting the active element formed in the semiconductor substrate from thermal breakdown, based on the heat detecting signal supplied from the heat-sensitive element.

4,760,435
ANTI-BLOOMING DRAIN STRUCTURE IN CHARGE COUPLED DEVICE IMAGE SENSORS

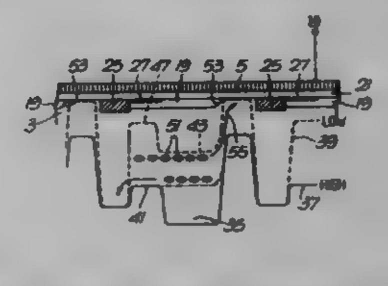
David J. Burt, London, England, assignor to The General Electric Company, p.l.c., England

Filed Jun. 25, 1986, Ser. No. 878,197

Claims priority, application United Kingdom, Jul. 5, 1985, 8517081

Int. Cl.⁴ H01L *29/78, 27/14, 31/00;* H04N *3/14*

U.S. Cl. 357—24 4 Claims



1. A frame transfer buried channel CCD image sensor, comprising: a semiconductor substrate; a plurality of charge storage and transfer channels disposed on the substrate in parallel spaced relationship; and between each adjacent pair of said channels, an anti-blooming drain structure, each channel adjoining the drain structure on one side thereof, but stopping short of the drain structure on the other side thereof, so that

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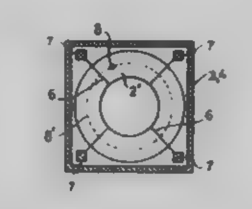
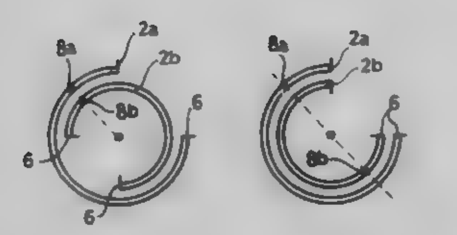
excess charge in each channel drains into said drain structure on said one side thereof, and charge of opposite polarity to that drained by said drain structure is provided with a path to the substrate between said channel and said drain structure on said other side thereof, thereby to limit accumulation of said charge of opposite polarity in said drain structure.

4,760,436
PHOTO-ELECTRIC TRANSDUCER

Xing Yi Zi, Delft, Netherlands, assignor to Nederlandse Centrale Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek, Netherlands
Filed May 21, 1986, Ser. No. 865,531
Claims priority, application Netherlands, May 24, 1985, 8501501
Int. Cl.⁴ H01L *29/06, 27/14, 31/08*
U.S. Cl. 357—30 6 Claims

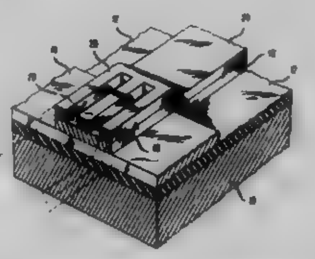




1. A lateral photo-effect photo-electric transducer, comprising a high-resistance semiconductor wafer which closely near its free surface is provided with a region extending parallel thereto, said region having an opposite conductivity type and a larger doping concentration than the wafer, said region being sufficiently transparent for radiation so that, if the pn junction between said region and said wafer is reversely biassed, upon irradiation photo-currents are generated in the junction region, which mainly flow through said region, electrodes being provided for collecting said currents which are connected to means adpated to measure the ratio between the currents flowing from a point of incidence of radiation towards the respective elektrodes so as to derive therefrom the distance from said point of incidence in respect of said electrodes, characterised in that the region of opposite conductivity type (2) is defined by substantially concentric circles, and has the shape of the trajectory described by a radiation spot (8), said region not being substantially wider than the incident radiation spot (8) and being provided with at least two electrodes (6) extending transversely to the longitudinal direction, all this in such a manner that said electrodes (6) are adapted to collect the currents flowing in the longitudinal direction through said region when radiation is incident therebetween.

4,760,437
NEURAL NETWORKS

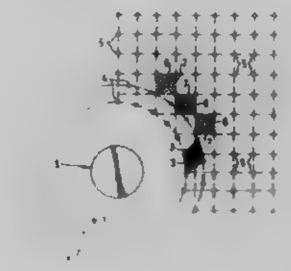
John S. Denker, Red Bank; Richard E. Howard, and Lawrence D. Jackel, both of Holmdel, all of N.J., assignors to American Telephone and Telegraph Company, AT&T Bell Laboratories, Murray Hill, N.J.
Filed Jan. 3, 1986, Ser. No. 796,085
Int. Cl.⁴ H01L *27/14*
U.S. Cl. 357—30 14 Claims



1. A structure suitable for information processing comprising a matrix and active electronic devices interacting with said matrix wherein said matrix comprises a plurality of row electrodes and a plurality of column electrodes, said matrix having intersecting regions that connect row electrodes to column electrodes wherein means are provided such that said information in process during said processing is interacting simultaneously with all said matrix intersections characterized in that
at least a portion of said intersecting regions comprise a photoconductive material.

4,760,438
THYRISTOR EMITTER SHORT CONFIGURATION

Werner Tursky, Nuremberg, Fed. Rep. of Germany, assignor to Semikron Gesellschaft für Gleichrichterbau und Elektronik m.b.H., Nuremberg, Fed. Rep. of Germany
Continuation of Ser. No. 258,530, Apr. 18, 1981, abandoned.
This application May 28, 1987, Ser. No. 59,222
Claims priority, application Fed. Rep. of Germany, May 8, [illegible]
Int. Cl.⁴ H01L *29/74*
U.S. Cl. 357—38 10 Claims



1. A thyristor comprising a semiconductor body having at least four sequential layers of alternatingly opposite conductivity types, one of said layers being an emitter zone and the contiguous layer of opposite conductivity type being a base zone; and a control electrode electrically connected to said base zone and surrounded by said emitter zone, wherein the improvement comprises

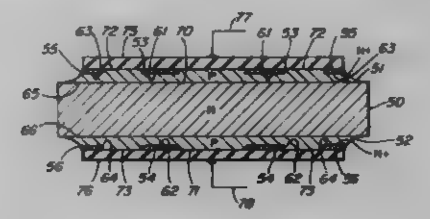
a first penetration region in said emitter zone which includes a circular pattern defined by at least first and second groups of apertures arranged in the form of corresponding concentric circles of different diameters about said control electrode to permit electrical contact between said base and emitter zones, the number of apertures in each of said first and second groups being the same and the region of said emitter zone in which said first penetration region is located being of smaller expanse than the remainder of said emitter zone;

a second penetration region in said emitter zone, spaced from and surrounding said first penetration region, which includes a polygonal pattern defined by a plurality of apertures arranged in the form of regular polygons wherein said apertures are located at the vertices of said regular polygons to permit electrical contact between said base and emitter zones, and

a transition region interposed between said first and second spaced penetration regions which includes a portion of a transition polygonal pattern defined by extending the polygonal pattern in said second penetration region toward said first penetration region to form extended regular polygons in said transition and first penetration region having the same configuration as the regular polygons in said second penetration region, wherein (1) no aperture is located at a vertice of said extended polygons which falls within or abuts said first penetration region unless said vertice coincides with an aperture of said first penetration region, and (2) each of said extended polygons is provided with an additional aperture therein if it does not contain an aperture of said first penetration region, whereby apertures are provided in said first and second penetration regions and in said transition region with a uniform density thereby optimizing firing propagation and the dv/dt behavior of said thyristor over the entire emitter area.

4,760,439
BI-DIRECTIONAL OVERVOLTAGE PROTECTION DEVICE

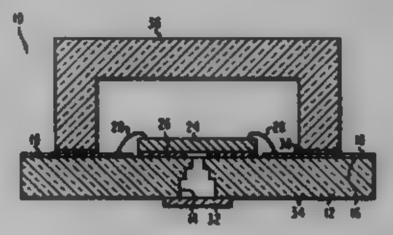
Jerzy Borkowicz, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada
Filed Nov. 4, 1986, Ser. No. 926,606
Int. Cl.⁴ H01L *29/747, 29/74*
U.S. Cl. 357—39 5 Claims



1. A five-layer structurally symmetrical bi-directional overvoltage protection device comprising:
a central semiconductor layer of one semiconductor type;
flanking semiconductor layers of an opposite semiconductor type;
at least one region of said one semiconductor type in each of the flanking layers at each outer face thereof, each region being disposed directly opposite a region in the other flanking layer;
each of the outer faces having an electrode in conductive contact thereon which extends to cover the regions and exposed parts of the layers contiguous thereto;
the area of the flanking layers exposed to the contacts at each surface being substantially equal to the area of the regions exposed thereto whereby when the device is conducting current in the on state, the current input density at one surface is substantially equal to the current output density at the opposed surface; and
characterized by a shorting junction formed at the intersection of the outer face of each layer, the electrode in conductive contact therewith and the contiguous region;
the shorting junction extending along both sides of at least one of the regions in each of the flanking layers, so that for a given width the effective shorting resistance resulting from the shorting junction, of each of the flanking semiconductor layers when conducting is substantially one-fourth that of a region in which the electrode contacts the shorting junction along only one side.

4,760,440
PACKAGE FOR SOLID STATE IMAGE SENSORS

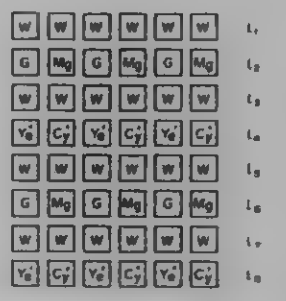
Robert R. Bigler, Moorestown, and Samuel Goldfarb, Princeton, both of N.J., assignors to General Electric Company, Schenectady, N.Y.
Filed Oct. 31, 1983, Ser. No. 547,217
Int. Cl.⁴ H01L *23/02, 23/12*
U.S. Cl. 357—74 7 Claims



1. A package for solid state image sensors comprising,
a base plate of silicon having a flat surface and an opening therethrough,
a plurality of image sensor devices mounted on said surface of the plate and in close proximity to each other, each of said image sensor devices including a silicon substrate having an array of detectors therein, said image sensor devices being mounted on the base plate with the detector array being exposed through said opening, and
a cover mounted on said base plate and extending over said image sensor devices so as to enclose said image sensor devices between the cover and the base plate.

4,760,441
SOLID-STATE COLOR IMAGING APPARATUS HAVING COLOR FILTER ARRAY WHICH ELIMINATES VERTICAL COLOR ERROR

Akiyoshi Kohno, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Continuation of Ser. No. [illegible], Sep. 13, 1984, abandoned, which is a continuation of Ser. No. 671,887, Nov. 13, 1984, abandoned. This application May 12, 1987, Ser. No. 49,[illegible]
Claims priority, application Japan, Nov. 10, 1983, 58-211184
Int. Cl.⁴ H04N *9/077, 9/07*
U.S. Cl. 358—44 5 Claims



W	W	W	W	W	W	l_1
G	Mg	G	Mg	G	Mg	l_2
W	W	W	W	W	W	l_3
Ye'	Cy'	Ye'	Cy'	Ye'	Cy'	l_4
W	W	W	W	W	W	l_5
G	Mg	G	Mg	G	Mg	l_6
W	W	W	W	W	W	l_7
Ye'	Cy'	Ye'	Cy'	Ye'	Cy'	l_8

1. A solid-state color imaging apparatus having color filters arrayed at a recurrence cycle of four picture elements in a vertical direction, and constructed so that in first and third rows, same-color filters for generating a same-signal component from each picture element are arrayed; in a second row, a first set of color filters for generating a first modulated color difference signal component are arrayed with a predetermined

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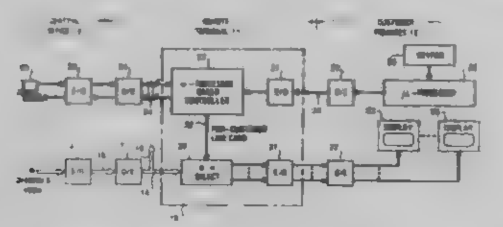
number of picture elements forming one cycle in a horizontal direction; and in a fourth row, a second set of color filters for generating a second modulated color difference signal component are arrayed with a predetermined number of picture elements forming one cycle in the horizontal direction; wherein said same-color filters of said first and third rows transmit blue, green and red light, the predetermined number of picture elements in said second row is two, and the first set of color filters comprises alternately arranged green and magenta filters.

3. A solid-state color imaging apparatus having color filters arrayed at a recurrence cycle of four picture elements in a vertical direction, and constructed so that in first and third rows, same-color filters for generating a same-signal component from each picture element are arrayed; in a second row, a first set of color filters for generating a first color modulated color difference signal component are arrayed with a predetermined number of picture elements forming one cycle in a horizontal direction; and in a fourth row, a second set of color filters for generating a second modulated color difference signal component are arrayed with a predetermined number of picture elements forming one cycle in the horizontal direction; wherein said same-color filters of said first and third rows transmit green light and transmit and attenuate incident red and blue light so that the transmitted red and blue light is half the intensity of the incident red and blue light, respectively, thereby to approximate the spectral characteristics of the luminance signal of an NTSC color television signal.

4,760,442
WIDEBAND DIGITAL SIGNAL DISTRIBUTION SYSTEM

Steven S. O'Connell, Whippany, and Daniel N. Utberg, Randolph, both of N.J., assignors to American Telephone and Telegraph Company, AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jul. 10, 1985, Ser. No. 753,535
Int. Cl.⁴ H04N *7/10;* H04M *11/08*
U.S. Cl. 358—86 6 Claims



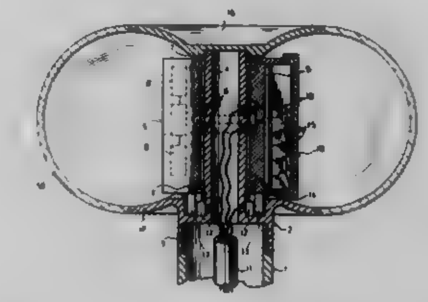
1. A wideband digital signal distribution system comprising
a plurality of signal transmission paths each including a different substantially non-reflectively terminated transmission line,
means for separately tapping signals from different locations along each of said transmission lines,
a plurality of subscriber line interface circuits each including one or more output connections and controllable means for selectably coupling signals from among the tapping means of more than one of said transmission lines to the one or more output connections of the line interface circuit,
said selectably coupling means comprising
means for receiving control signals,
means, responsive to said control signals, for coupling a selected one of said tapping means to one of said one or more output connections of said each interface circuit,
means responsive to said control signals for coupling a selected one or more additional ones of said tapping means to the one of said one or more output connections of each interface circuit, and
means for time multiplexing the digital signal from said selected one of said tapping means and the digital signals from said selected one or more additional ones of said tapping means onto one of the one or more output connections of said interface circuit.

2. A wideband digital signal distribution system comprising
a plurality of signal transmission paths each including a different substantially non-reflectively terminated transmission line,
means for separately tapping signals from different locations along each of said transmission lines,
a plurality of subscriber line interface circuits each including controllable means for selectably coupling signals from among the tapping means of more than one of said transmission lines to an output connection of the line interface circuit,
a central office remotely located with respect to said transmission lines and said subscriber line interface circuits, said office having plural wideband digital signal output connection,
means for coupling said office output connections to said transmission line, respectively, and
a plurality of customer terminals located in the vicinity of said transmission lines and said subscriber line interface circuits, and
means for coupling an output connection of each of said interface circuits to a different one of said customer terminals.

4,760,443
DISPLAY MEANS

Jan Secka, Baden, Austria, assignor to Technolizenz Establishment, Triesen, Liechtenstein

Filed Jul. 9, 1986, Ser. No. 883,579
Claims priority, application Switzerland, Jul. 10, 1985, 2984/85
Int. Cl.⁴ H04N *7/00, 5/66*
U.S. Cl. 358—87 11 Claims

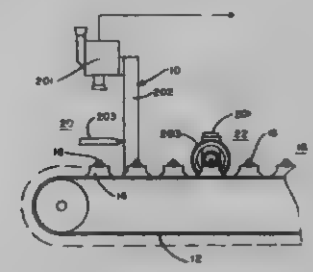


1. A display means, for directing an image along an angularly movable axis; comprising
a display surface arranged in a plane for displaying an image;
light source means for emitting light along an optical path comprising the optical axis for illuminating the display surface;
image movement means for moving the display surface so as to swing the angularly movable axis about a rotational axis; and
aperture means for exposing adjacent portions of the display surface along lines of sight which, for each position of the movable axis, correspond with respective adjacent portions;
the aperture means comprising optical bundling means which simultaneously transmit light from a plurality of adjacent portions of the displayed image along the movable axis and, at the same time, prevent light from being transmitted from said adjacent portions of the displayed image at an angle to said movable axis, while light reflecting means are provided for deviating the optical path of light emitted by the light source means, the display device further comprising a screen being transparent for transmitting the image which surrounds the moving image.

4,760,444
MACHINE VISUAL INSPECTION DEVICE AND METHOD

Paul C. Nielsen, N. Andover, and Wolfgang Kaufman, Northampton, both of Mass., assignors to CSD International, Inc., Shelburne Falls, Mass.

Filed Jul. 22, 1987, Ser. No. 76,391
Int. Cl.⁴ H04N *7/18*
U.S. Cl. 358—101 18 Claims



1. A machine visual inspection device for inspecting a work piece by video image means in combination comprising:
a. a video camera attached to a stand which scans by reflectance values an illuminated inspection field containing the workpiece and in defined locations within the field a calibrated gray scale and a target;
b. the video camera having scanning means for transmission of addressed reflectance values of the workpiece, the gray scale and the target as analogue signals which values are converted by digitizing means into a data stream of digital signals, which are read into memory in a central processing unit of a computer which has stored in said memory for comparison with the data stream a defined digitized reference stream comprising defined addresses and reflectance values for the workpiece, calibrated gray scale and target;
c. the computer's memory having aligning means to align the data stream target with the reference target; and
d. the computer's memory having comparison means whereby the stream's gray scale and reference streams gray scales may be compared finding their difference;
e. the device having rejection means to reject the workpiece.

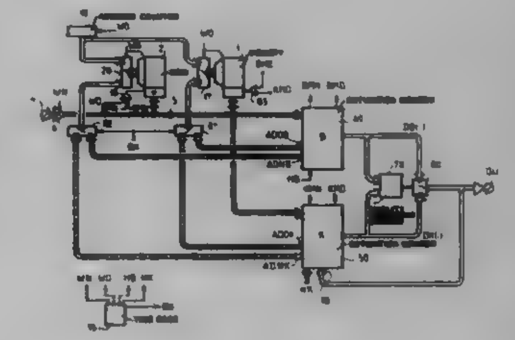
4,760,445
IMAGE-PROCESSING DEVICE FOR ESTIMATING THE MOTION OF OBJECTS SITUATED IN SAID IMAGE

Mékano Mijiyawa, Paris, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 9, 1987, Ser. No. 36,221
Claims priority, application France, Apr. 15, 1986, 86 05348
Int. Cl.⁴ H04N *7/137*
U.S. Cl. 358—105 9 Claims

1. An image-processing device for estimating the motion displacement $D(Z_i)$ of objects situated in the image comprising a first estimation member which is an estimation member of a KALMAN filtering member providing for each image point "i" having the coordinates Z_i, a displacement vector $DK(Z_i)$ from two successive images $I(Z_i, t)$ and $I(Z_i, t\text{-}TR)$ separated by a period TR, a second estimation member for providing a displacement vector $DB(Z_i)$ for each point "i" of the image, a quality measuring member for evaluating the vectors $DK(Z_i)$ and $DB(Z_i)$ and for controlling a vector selector to select that one of the two vectors $DB(Z_i)$ and $DK(Z_i)$ which provides the best estimation for the vector $D(Z_i)$, such that the first estimation member is adapted to receive said vector $D(Z_i)$, wherein means forming part of the Kalman filtering member provide the value $DK(Z_i)$ from predetermined parameters and means providing a value referred to as the innovation IFD so that

$$IFD(Z_i)=I(Z_i, t)-I(Z_i-DK(Z_i), t-TR)$$

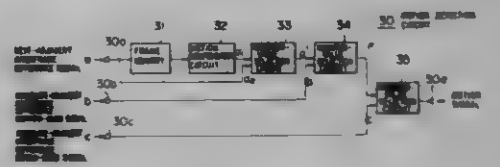


and said means forming part of the Kalman filtering member further comprises a device for providing a succession of said parameters and the quality measuring member is also adapted to evaluate the minimum value of IFD as a function of the predetermined parameters.

4,760,446
METHOD AND APPARATUS FOR DETECTING THE MOTION OF IMAGE IN A TELEVISION SIGNAL

Yuichi Ninomiya, Kawasaki, and Seiichi Gohshi, Kanuma, both of Japan, assignors to Nippon Hoso Kyokai, Tokyo, Japan

Filed Sep. 29, 1987, Ser. No. 102,435
Claims priority, application Japan, Sep. 30, 1986, 61-230126
Int. Cl.⁴ H04N *7/12*
U.S. Cl. 358—105 5 Claims



1. A method of detecting the motion of image in a television signal of the multiple subsampling transmission system in which a television signal is transmitted with the transmission bandwidth thereof being compressed so as not to include an interframe aliased portion in a lower frequency region, said method comprising the steps of:
producing three signals including a next-adjacent interframe difference signal, an immediate-adjacent interframe difference narrow-band signal without the interframe aliased portion and an immediate-adjacent interframe difference broad-band signal with the interframe aliased portion;
taking a maximum-value between prescribed two signals among said next-adjacent interframe difference signal or a signal related thereto, said immediate-adjacent interframe difference narrow-band signal or a signal related thereto and said immediate-adjacent interframe difference broad-band signal or a signal related thereto; and
taking a minimum-value between a resulting maximum-value signal and a remaining signal other than said two signals so that a resulting minimum-value signal is validated as a motion signal which indicates the motion of image.

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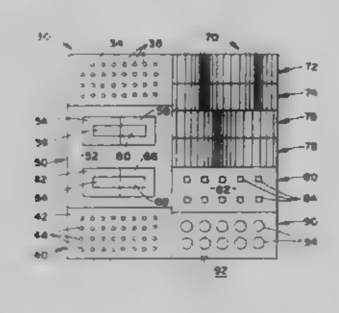
4,760,447
[redacted]
MONITORS AND CAMERAS

Narasimha R. Koka, Richmond Hts., and William E. Szabo, Olmsted, both of Ohio, assignors to Picker International, Inc., Highland Hts., Ohio

Filed Jul. 31, 1986, Ser. No. 891,749

Int. Cl.⁴ H04N *17/00, 7/08*

U.S. Cl. 358—139 22 Claims



1. A method of verifying brightness and contrast adjustments of a hard copy camera which converts electronic signals indicative of an image into a photograph of the image, the method comprising:
- initially calibrating the camera
- immediately following the initial calibration, photographing a calibration test pattern to produce a reference photograph, the calibration pattern including at least two brightness and contrast calibration regions, each region having a background portion and a plurality of subregions, which subregions within each region having progressively greater contrast with the background portion such that the number of visible subregions varies with the brightness and contrast adjustment;
- at a subsequent time, again photographing said calibration pattern to produce a second photograph of the calibration pattern; and,
- comparing the number of visible subregions in the reference and second photographs to verify the brightness and contrast adjustments

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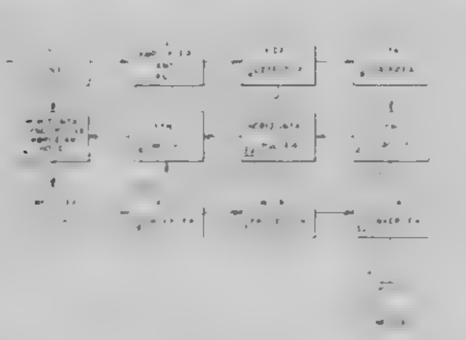
4,760,448
METHOD OF MEASURING AMPLITUDE VARIATIONS [redacted]

Glen Wittrock, and Barry A. Arneson, both of Sioux Falls, S. Dak., assignors to Sencore, Inc., Sioux Falls, S. Dak.

Filed May 4, 1987, Ser. No. 25,567

Int. Cl.⁴ H04N *17/00, 5/08*

U.S. Cl. 358—139 4 Claims



1. A method of measuring periodic amplitude variations of a video carrier modulated with a video signal including video information and horizontal and vertical sync pulses, comprising:
- detecting said video signal,
- sampling the level of said detected video signal only during the occurrence of said horizontal sync pulses,
- storing the maximum and minimum levels of the sampled levels occurring during a predetermined period, and
- displaying a visual indication of the difference between said maximum and minimum levels.

[redacted]
VIDEO SIGNAL PROCESSING APPARATUS

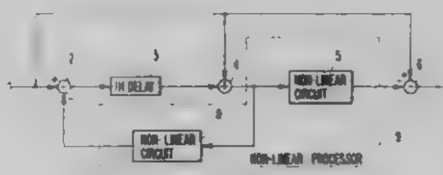
Tokikazu Matsumoto, Osaka; Yukio Nakagawa, Moriguchi, and Masahiro Honjo, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 1, 1986, Ser. No. 846,819

Claims priority, application Japan, Apr. 3, 1985, 60-70257; Jun. 27, 1985, 60-140814

Int. Cl.⁴ H04N *5/21, 9/64*

U.S. Cl. 358—167 11 Claims



1. A video signal processing apparatus comprising:
- a delay circuit for delaying a signal input thereto by a predetermined period of time;
- a first operational circuit for conducting an addition or subtraction operation between an output signal of said delay circuit and an input video signal;
- a nonlinear processing circuit for receiving an output signal of said first operational circuit as a signal input thereto and for generating first and second output signals, said nonlinear processing circuit arranged such that said first output signal has a gain of K with respect to said signal input thereto that decreases with an increase of an absolute value of the level of said output signal from said first operational circuit and becomes zero when said absolute value exceeds a specified value, and said second output signal has a gain of $\frac{1}{2}(1+K)$ with respect to said signal input thereto;
- a second operational circuit for conducting an addition or subtraction operation between said first output signal of said nonlinear processing circuit and said input video signal and for outputting an operation result as said signal input to said delay circuit; and
- a third operational circuit for conducting an addition or subtraction operation between said second output signal of said nonlinear processing circuit and said input video signal and for outputting, as an operation result, a noise reduced video signal.

4,760,450
LIMITER CIRCUIT FOR PREVENTING BLOOMING IN A VIDEO DISPLAY TERMINAL

Yasuo Yagi, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Aug. 4, 1986, Ser. No. 892,823

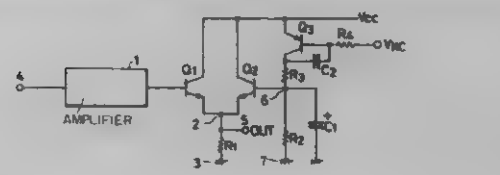
Claims priority, application Japan, Aug. 6, 1985, 60-120332[U]

Int. Cl.⁴ H04N *5/52, 5/57*

U.S. Cl. 358—170 6 Claims

1. A limiter circuit for receiving and controlling video signals for a video display terminal, said video display terminal having means for producing a contrast voltage indicative of overall contrast conditions on the video display terminal, the circuit comprising
- means for amplifying said video signals; and

- means coupled to said video display terminal and receiving amplified video signals from said amplifying means for selectively limiting occurrence of blooming on said display terminal in response to the contrast voltage of said video display terminal so that blooming selectively occurs according to the overall contrast conditions on the video display terminal.



[redacted]

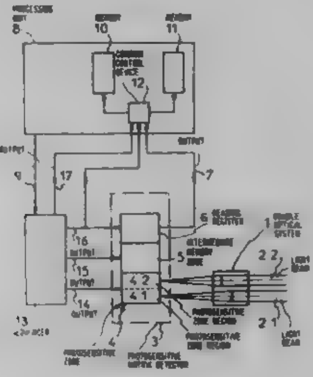
Gilles Grenier, L'Hay-Les-Roses, and Sylvain Berthier, Nemours, both of France, assignors to Aerospatiale Societe Na-[redacted]

Filed May 1, 1987, Ser. No. 44,770

Claims priority, application France, May 1, 1986, 86 06399

Int. Cl.⁴ H04N *3/14*

U.S. Cl. 358—213.13 2 Claims



1. An opto-electronic CCD sensor, comprising:
- an optical system for forming optical images;
- a photosensitive CCD matrix detector comprising:
  - a photosensitive zone constituted by a plurality of lines of photosensitive elements illuminated by said optical system and forming electrical images by integration of the electrical charges generated by the photons received by said photosensitive elements;
  - an intermediate memory zone in which are transferred said images contained in said photosensitive zone; and
  - a reading register in which are transferred said images of the intermediate memory zone, said reading register generating a series video signal representative of the optical images received by said photosensitive zone;
- memory means outside said matrix detector; and
- a sequencer controlling the acquisition of said electrical images by said photosensitive zone and capable of governing the transfers of images between said photosensitive zone and said intermediate memory zone, between said intermediate memory zone and said reading register and between said reading register and said outside memory means,

wherein
- said optical system is multiple and is capable of forming on said photosensitive zone a plurality of juxtaposed images belonging to different and/or superposed optical fields; and
- said sequencer:
  - controls the simultaneous acquisition by said photosensitive zone of said plurality of images;
  - controls the transfer of said plurality of images thus acquired from said photosensitive zone into said intermediate memory zone, then, via said reading register, the transfer of said plurality of images from said intermediate memory zone into said outside memory means; and
  - controls the distribution of said images in said outside mem[redacted] means.

[redacted]

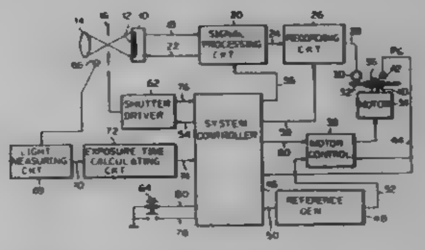
Co., Ltd., Kanagawa, Japan

Filed Feb. 9, 1987, Ser. No. 12,029

Claims priority, application Japan, Feb. 12, 1986, 61-26850

Int. Cl.⁴ H04N *3/14*

U.S. Cl. 358—213.13 4 Claims



1. An electronic still camera comprising:
- solid-state imaging means for generating electric charges related to incident light applied thereto and for developing the electric charges in the form of a unit of video signals in response to a driving signal;
- exposing means having an optical shutter which opens and closes in response to an instruction signal to expose said solid-state imaging means to the incident light;
- recording means for rotating a rotary recording medium to record the unit of video signals on the rotary recording medium;
- phase detecting means for detecting a predetermined rotation phase of the rotary recording medium to produce a phase detect signal; and
- control means responsive to a shutter release button and said phase detecting means for controlling said solid-state imaging means, exposing means, and recording means, the unit of video signals being recorded on the rotary recording medium in a rotation beginning from the predetermined rotation phase of the rotary recording medium with reference to the phase detect signal;
- said exposing means supplying said exposing means in response to the shutter release button with a first instruction signal for opening the optical shutter at a point of time advanced by an exposure time with respect to the phase detect signal;
- said control means supplying a driving signal to said imaging means immediately before the optical shutter is opened to cause said imaging means to discharge electric charges therefrom;
- said control means supplying a second instruction signal to said exposing means to close the optical shutter;
- said control means supplying, when the optical shutter is closed, a driving signal to said imaging means at an ordinary video signal rate to cause electric charges in said imaging means to be developed in the form of a unit of video signals for supply to said recording means, said recording means recording the unit of video signals on the

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[illegible] Tasuyoshi Ito, both of Yoko[illegible]
[illegible] Kawasaki, all of Japan, assignors [illegible]

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r, assignors to Alps Electric Co., Ltd., Japan
Filed Sep. 5, 1986, Ser. No. 904,626

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aratoga, and Charles G. Snyde
gnors to International Busines

[illegible]
ehida, Shuji Nakame, and Syogo Nakaya
a, all of Japan, assignors to Matsushita

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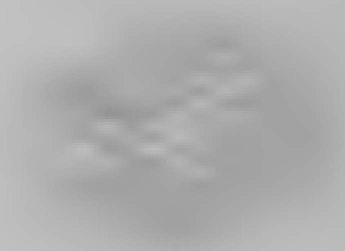
lication Japan, Dec. 17, 1984, S



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filed Oct. 1, 1956, Ser [illegible]

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[illegible] RELAY FOR PROTECTING
[illegible] POWER TRANSMISSION SYS[illegible]
Kwong, Stafford, and Adrian O. Newbould, Hixon
[illegible] to The General Electric Compa[illegible]
[illegible] No. [illegible]

[illegible]ROL APPA[illegible]
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[illegible] Kabushiki Kaisha, Tokyo, Japan
[illegible] Dec. 30, 19[illegible], Ser. No. 9[illegible]

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[illegible] of Ser. No. 777,624, Sep. 19, 1985, [illegible]
application Nov. 12, 1986, Ser. No. 930,0[illegible]

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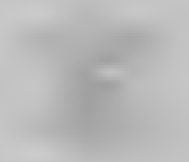

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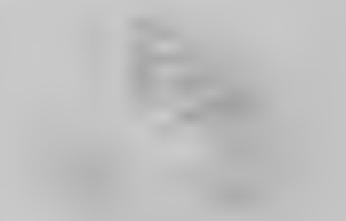
235, Ser. No. 47,



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Shizuoka, Japan, assignors to
Tokyo, Japan

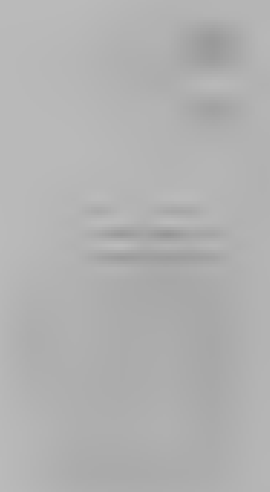
[illegible] Feb. 20, 1987, Ser. No. 16,7[illegible]

[illegible] application Japan, Feb. 20, [illegible]

5, 1986, 61-44[illegible]; Dec. 18, [illegible]

[illegible] PRESSION CHARACTERISTICS

[illegible] L. Lasher, Edison, N.J., and Joel S. Cohen, Oak-
[illegible], assignors to Prescolite, Inc., San Leandro, Calif.



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of Ser. No. 560,533,
Application Oct. 29, 198

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SCALAR OPERATIONS IN A COMP

anan Potash; Erick M. Cook, both of La Jolla;
Phelps, San Diego; Mark A. Hackmeester; Jennife
both of Encinitas, and William B. Thompson, San Diego,
Calif., assignors to Scientific Computer Systems Corpora

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[illegible] Schwald, Rockford, and Mario [illegible]
of Ill., ass[illegible]

[illegible] DIFFERENT CAPACITY [illegible]
[illegible]AY UNITS IN A COMPUTER
[illegible] R. Weatherford, 5500 Knights Ct., Lake Dallas, [illegible]
[illegible]065, and Arthur T. Kimmel, 4522 Windward Cir., De[illegible]
Tex. 7525[illegible]
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[illegible] application Oct. 1, 19[illegible]
[illegible] Int. Cl.⁴ G06[illegible]

[illegible]tsubo, both of Redondo Beach,
[illegible] Inc., Redondo Beach, Calif.

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Filed May 13, 1986, Ser. No. 862,884

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Masaki Ishida, and Takashi Chiba, both of Kawa
Assignors to Fujitsu Limited, Kawasaki, Japan
Filed Jun. 19, 1985, Ser. No. 746,53
2, 1984, 59-

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Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 359,290, Mar. 18, 1

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Road, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

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, South Bound Brook, [illegible]

, Kazuyasu Fujishima, Masaki Kumano
, and Katsumi Dosaka, all of Itami,

6, Ser. No. 85
Japan, Jul. 1[illegible]

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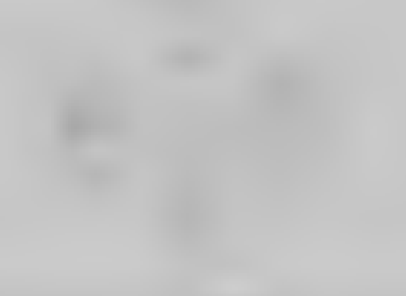

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Horst Querser, Bruchkobel; Siegfried Meintnger, Altenstac, and Karl Heinz Kretschroth, Frankfurt, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim-Ruhr, Fed. Rep. of Germany

Division of Ser. No. 670,373, Nov. 9, 1984, Pa.

ed Dec. 27, 198

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TELEVISION CONVERTER INSTALLAT
AND ADDRESS ASSIGNMENT

... and Richard F. Beale, both of [illegible]

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and Bruce R.

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ro Tanigaki, Kyoto, Japan, assignor to Sharp
kaisha, Osaka, Japan
ntinuation of Ser. No. 720,713, Apr. 8, 1985, aban
application Sep. 24, 1987, Ser. No. 102,7
s priority, application Japan, Apr. 11, 19

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…PORT RACK AND BOOT…
POLE ACCESSORIES
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Oakland, Calif. 94…
…6, Ser. No. 894,3…

…LOW TORCH HANDLE
…-Louis Vigreau, Varilhes, France, assgr…

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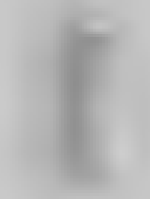
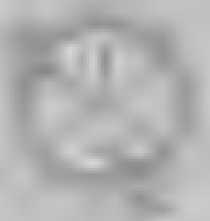
d May 6, 1985
application 1





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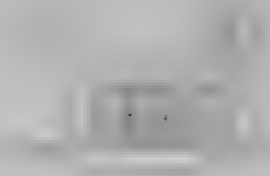
an Philips Corporation, New York, N.Y.
Dec. 20, 1985, Ser. No. 811,564



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rporation, New York, N.Y.
Filed Dec. 20, 1985, Ser. No. 811,565
Term of patent 14 years

ANICAL EQUIPMENT
SCALES OR THE LIKE
rd N. Swenson, Livonia; Thomas S. Hicks, West
homas N. Good, Lincoln Park, all of Mich., assi
rroughs Corporation, Blue Bell, Pa.

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R HAND TOOL
41st Ave., San Mateo, Calif. 94403
3, 1985, Ser. No. 725,776

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cob J. Higgins, Elkhart, Ind., assignor to Trans
tional, Inc., Elkhart, Ind.
d Oct. 30, 1986, S
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Jun. 27, 1985, Ser. No. 749
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Term of patent 14 yea

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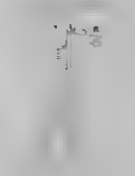
Walling, and Gracie L. Walling
nessee Ridge, Tenn. 37178



facturing Company, Inc., Little Neck, N.Y.
Filed Sep. 9, 1985, Ser. No. 77
erm of patent 14

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ICAL RECEPTACLE
Meadow, and David S. Schneider
assignors to Leviton Manufactur

A. Crown Hart, Calif.
Denki Kabushiki Kaisha, Tok

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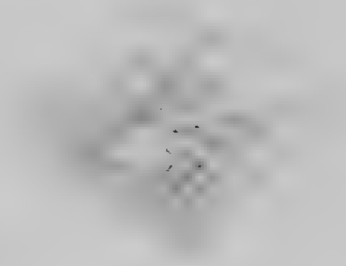
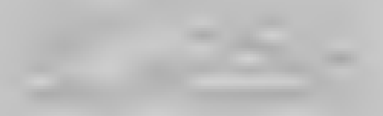
TELEPHONE SET

C. Aechauer, Newtown, Conn., assignor to The/Com-

Filed Apr. 16, 1986, Ser. No. 855,760





TELEPHONE MACHINE WITH ID RECEIVER

Takeshi Taniuchi; Seiji Wada, both of Kanagawa, Japan, and Michael A. Cooper-Hart, Cupertino, Calif., assignors to Matsushita Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1986, Ser. No. 851,422

Claims priority, application Japan, Oct. 14, 1985, 60-4298

tion of the term of this patent subsequent to Jul. 26

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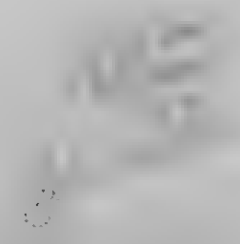


TELEPHONE STATION SET

Lim B. Chen, Hong Kong, Hong Kong, assignor

Filed May 1, 1985, Ser. No. 779

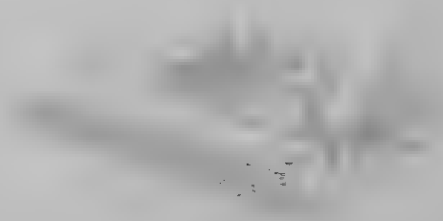
FREQUENCY CONVERTER FOR AN A

Filed Nov. 19, 1985

Claims priority, application Ja

cisco, and John W. Toor, Palo A

Xerox Corporation, Stamford



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VING MACHINE
roshi Nishibori, both of
harp Corporation, Osaka, Japan
ed Dec. 27, 1985, Ser. No. 814,1
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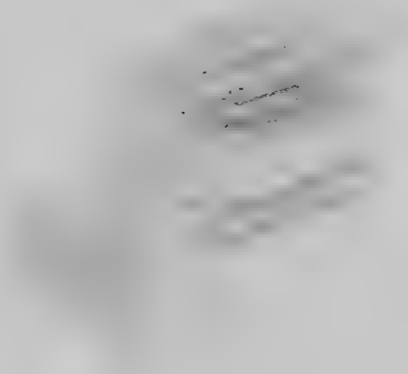

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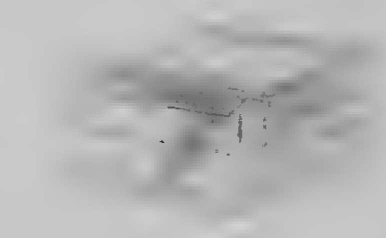
Japan, assignor to Sha
iled Dec. 24, 198
claims priority, application Ja



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l., assignors to Internationa

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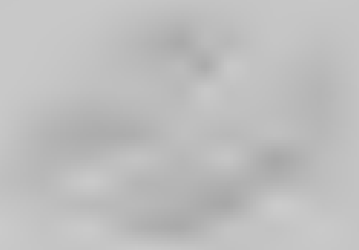

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Tokyo, Japan, assignor to Takara Co.,
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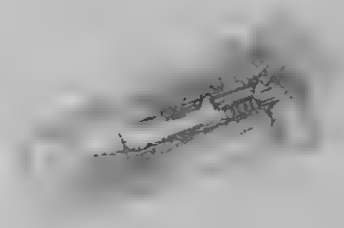

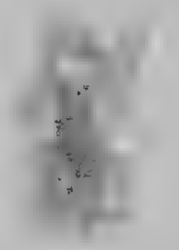

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Matsumoto, Tokyo, Japan, assignor to Takara Co., L
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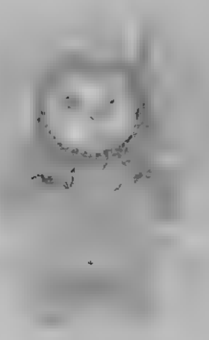
Tokyo, Japan



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Yoshimasa Yokoyama, Koganei; Kiyonori Furukawa, Fukuoka, and Maki Fujisawa, Tokyo, all of Japan, assignors to Kyushu Hitachi Maxell, Ltd., Fukuoka, Japan
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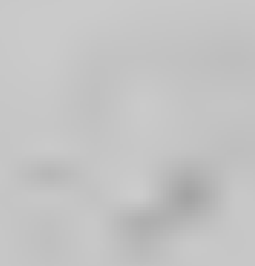

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... PATIENT FO...
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LEG ELEVATOR

John V. Treagheer, 84 Bel Air Dr., Longmeadow, Ma...
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...SOLARIUM

Jan Olsson, Vastra Frolunda, Sweden, assignor t... Sweden
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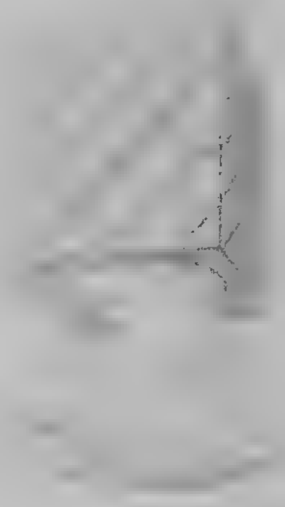

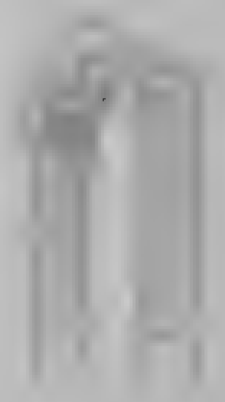

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Joseph M. Minkevitch, 26 Folan Ave., Norwood, Mass. 02062, and Edward J. Martin, 107 Washington Green, E. Walpole, Mass. 02032

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Loyd Keeter, Rte. 1, Box 114, Throckmorton, Tex

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) Limited, Remuera, New Zealand

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Sachio Yamamoto, and Chikashi Kuriya, both of Os

assignors to Sharp Corporation, Osaka, Japan

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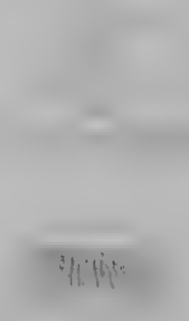

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